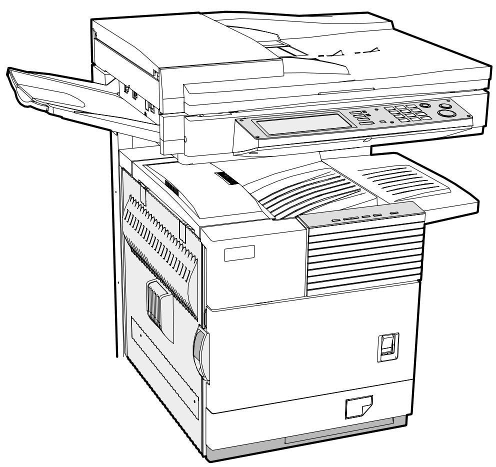
SHARP SERVICE MANUAL

CODE : 00ZARM350UA1E



LASER PRINTER

MODEL AR-M350U/M450U AR-M350N/M450N

OPTIONS AR-P14

[1] INTRODUCTION

The AR-M350U/M450U and AR-M350N/M450N are minor change models based on the AR-M350/M450.
This service manual only provides information on these minor changes.
In addition to this service manual, the documents listed below are required to properly maintain these machines.

•AR-M350/M450	Service Manual : 00ZARM350/A1E	Parts Guide : 00ZARM450/P1E	Circuit Diagram : 00ZARM350/C1/
•AR-P350/P450	Service Manual : 00ZARP350/A2E	Parts Guide : 00ZAR350LPP1/	Circuit Diagram : 00ZARP350/C1/
•AR-NC5J	Service Manual : 00ZARNC5J/A1E		

Note: Depending on the option, additional service documentation may be required.

[2] LIST OF DIFFERENCES FROM AR-M350/M450

A.Product composition

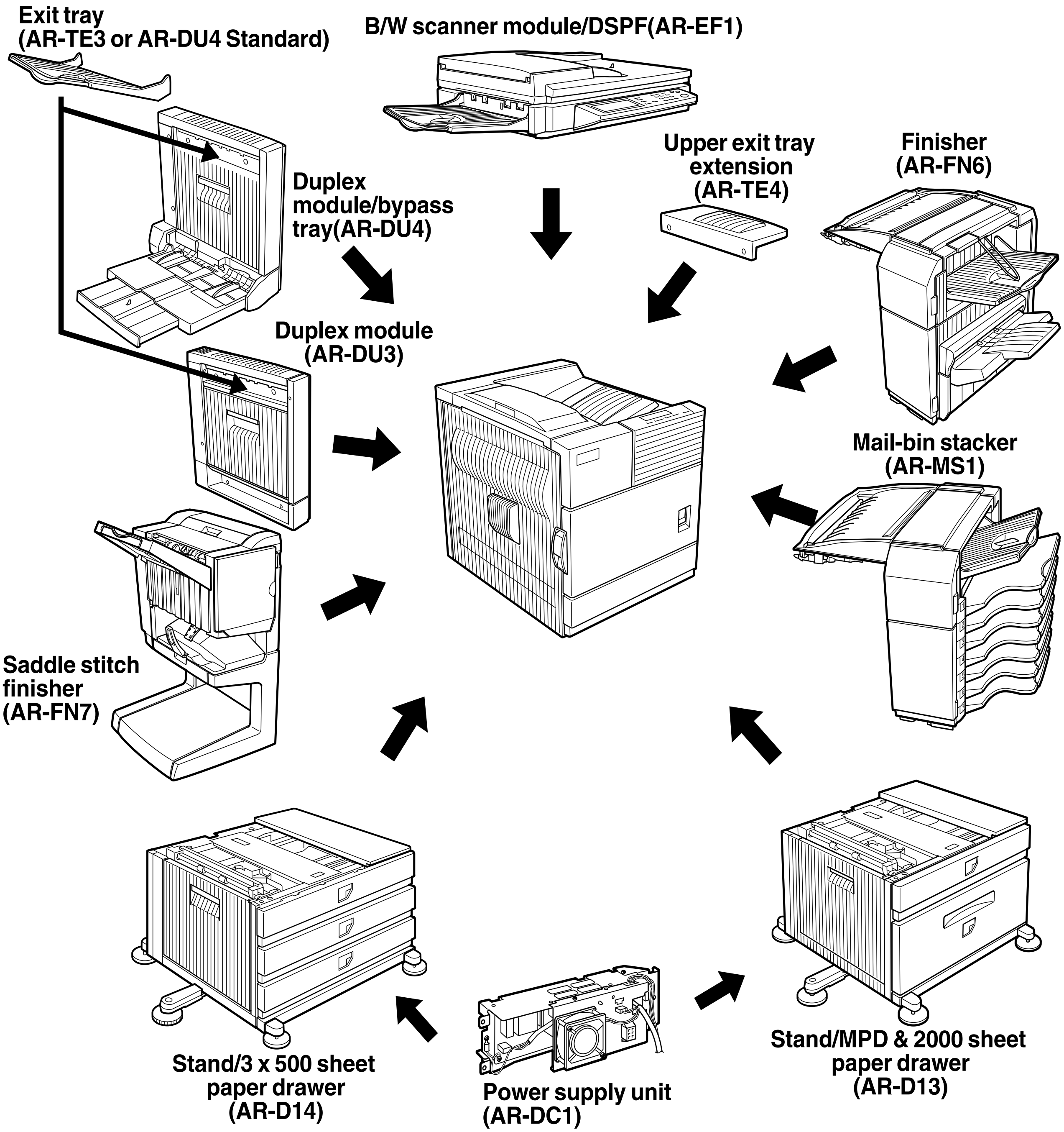
	Model Name	Printer Option Model	NIC Standard Model	Note
Base Engine		AR-M350U AR-M450U	AR-M350N AR-M450N	
Print Speed		35ppm 45ppm	35ppm 45ppm	
Multi Function Controller	AR-M11	Not Available	Standard	
Multi Function Controller(for U-Model)	Not Available	Standard	Not Available	Not registered as a product
Print Server Card	AR-NC5J	Not Available	Standard	
Printer Extension Kit	AR-P14	Option	Not Available	*1

*1: Installation of the AR-P14 on the AR-M350U/M450U will provide similar functionality to that of the AR-M350/M450.

Parts marked with "⚠" are important for maintaining the safety of the set.
Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

[3] CONFIGURATION

1.System Configurations



2. Standard

Category	Model Name	Other options required for the installation/mounting. (Options must be ordered separately.)	Remarks
MFP model (35ppm)	AR-M350	• B/W Scanner module/DSPF (AR-EF1) • Scanner Rack(AR-RK1) • Stand/MPD&2000 sheet paper drawer (AR-D13) or Three paper drawer stand (AR-D14) • Power supply unit (AR-DC1)	
MFP model (45ppm)	AR-M450		
MFP model (35ppm)	AR-M350U		
MFP model (45ppm) (Without network printer function)	AR-M450U		
MFP model (35ppm) (With NIC card (standard))	AR-M350N		
MFP model (45ppm)	AR-M450N		

3. List of combination of peripheral devices

A.AR-M350U/M450U

As shown in the table below, some other peripheral devices (B) may be needed for installation of a peripheral device (A) and some peripheral devices cannot be installed together.

A		B/W scanner module/DSPF	Scanner rack	Stand/3 x 500 sheet paper drawer	Stand/MPD & 2000 sheet	Duplex module/bypass tray	Duplex module	Saddle stitch finisher	Finisher	Mail-bin stacker	Exit tray	Upper exit tray extension	Punch unit	Multi-function controller board	Print server card	PS3 expansion kit	Network scanner expansion kit	Facsimile expansion kit	Fax memory (8 MB)	Power supply unit	Hard disk drive	Network printer kit
Related for scanner feature																						
B/W scanner module/DSPF	AR-EF1	–	○	○*1										○						○		
Scanner rack	AR-RK1	○	–	○*1										○						○		
Related for paper feed unit																						
Stand/3 x 500 sheet paper drawer	AR-D14			–	×															○		
Stand/MPD & 2000 sheet paper drawer	AR-D13			×	–															○		
Duplex module/bypass tray	AR-DU4			○*1		–		×					×							○*2		
Duplex module	AR-DU3			○*1			–													○*2		
Output units																						
Saddle stitch finisher	AR-FN7			○*1		×	○	–	×		×	×								○		
Finisher	AR-FN6			○*1				×	–	×		×	×							○		
Mail-bin stacker	AR-MS1			○*1					×	–		×								○		
Exit tray *4	AR-TE3					○*1		×	×	×	–		×									
Upper exit tray extension	AR-TE4								×	×		–										
Punch unit	AR-PN1			○*1		×	○	○	×		×		–							○		
Related for extension of functions and others																						
PS3 expansion kit	AR-PK1															–						
Network scanner expansion kit	AR-NS2	○	○	○*1											○		–					
Facsimile expansion kit	AR-FX5	○	○	○*1														–				
Fax memory (8 MB)	AR-MM9	○	○	○*1														○	–	○		
Power supply unit	AR-DC1			○*1																–		
Hard disk drive	AR-HD3																				–	
Multi-function controller board *5	AR-M11	○	○	○*1										–								×
Print server card *6	AR-NC5J														–		○*1					○*1
Network printer kit	AR-P14														○							–

○ = Must be installed together.
○*1 = Any of the units must be installed together.
○*2 = Must be installed for installation of the stand/3 x 500 sheet paper drawer or the stand/MPD & 2000 sheet paper drawer.
× = Cannot be installed together.
*3 = Standard
*4 = AR-DU4 Standard
*5 = Attachment of the AR-P14 provides the similar functions.
*6 = Not Available

B.AR-M350N/M450N

As shown in the table below, some other peripheral devices (B) may be needed for installation of a peripheral device (A) and some peripheral devices cannot be installed together.

A \ B	Model	B/W scanner module/DSPF	Scanner rack	Stand/3 x 500 sheet paper drawer	Stand/MPD & 2000 sheet	Duplex module/bypass tray	Duplex module	Saddle stitch finisher	Finisher	Mail-bin stacker	Exit tray	Upper exit tray extension	Punch unit	Multi-function controller board	Print server card	PS3 expansion kit	Network scanner expansion kit	Facsimile expansion kit	Fax memory (8 MB)	Power supply unit	Hard disk drive	Network printer kit
Related for scanner feature																						
B/W scanner module/DSPF	AR-EF1	—	O	O*1										O						O		
Scanner rack	AR-RK1	O	—	O*1										O						O		
Related for paper feed unit																						
Stand/3 x 500 sheet paper drawer	AR-D14			—	×															O		
Stand/MPD & 2000 sheet paper drawer	AR-D13			×	—															O		
Duplex module/bypass tray	AR-DU4			O*1		—		×					×							O*2		
Duplex module	AR-DU3			O*1			—													O*2		
Output units																						
Saddle stitch finisher	AR-FN7			O*1		×	O	—	×		×	×								O		
Finisher	AR-FN6			O*1				×	—	×		×	×							O		
Mail-bin stacker	AR-MS1			O*1					×	—		×								O		
Exit tray *4	AR-TE3					O*1		×	×	×	—		×									
Upper exit tray extension	AR-TE4								×	×		—										
Punch unit	AR-PN1			O*1		×	O	O	×		×		—							O		
Related for extension of functions and others																						
PS3 expansion kit	AR-PK1															—						
Network scanner expansion kit	AR-NS2	O	O	O*1											O		—					
Facsimile expansion kit	AR-FX5	O	O	O*1														—				
Fax memory (8 MB)	AR-MM9	O	O	O*1														O	—	O		
Power supply unit	AR-DC1			O*1																—		
Hard disk drive	AR-HD3																				—	
Multi-function controller board *3	AR-M11	O	O	O*1										—								
Print server card *3	AR-NC5J														—							
Network printer kit *6	AR-P14																					—

O = Must be installed together.

O*1 = Any of the units must be installed together.

O*2 = Must be installed for installation of the stand/3 x 500 sheet paper drawer or the stand/MPD & 2000 sheet paper drawer.

× = Cannot be installed together.

*3 = Standard

*4 = AR-DU4 Standard

*6 = Cannot be attached.

[4] SPECIFICATIONS

1. Basic Specification

A. Base Engine (AR-M350U/M350N/M450U/M450N)

(1) Form

AR-M350U/M350N/M450U/M450N	Console type

(2) Engine speed

Paper size	AR-M350U/N	AR-M450U/N
A4, 8.5" x 11"	35ppm	45ppm
A5R/5.5" x 8.5"R	35ppm	45ppm
B5	35ppm	45ppm
B4/8.5" x 14	20ppm	22ppm
A3/11" x 17"	17ppm	20ppm

(3) Engine composition

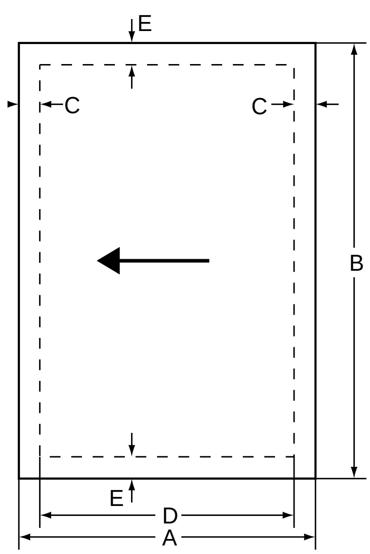
Photoconductor type	OPC (diameter of photoconductor : ø30mm)
Record method	Electrophotograph (laser)
Development method	Dry-type dual-component magnetic brush development
Charge method	Charged saw-tooth method
Transfer method	Transfer roller
Cleaning method	Counter blade
Fusing method	Heat roller
Used toner disposal	Toner recycling system

(4) Engine resolution

Resolution	Write :600dpi
Smoothing	Write :1200dpi equivalent
Gradation	Write :2 levels

(5) Printable area

The print area of this product is shown below.



If a printer driver for Windows or Macintosh is used for printing, the printable area will be smaller. The actual printable area depends on the printer driver to be used.

(in mm)

Paper size	A	B	C	D	E
A3	297	420	4	289	4
B4	257	364	4	242	4
A4	210	297	4	202	4
B5	182	257	4	168	4
A5	148	210	4	140	4
Japanese postcard	100	148	4	92	4
Ledger	279	432	4	271	4
Legal	216	356	4	208	4
Foolscap	216	330	4	208	4
Letter	216	279	4	208	4
Executive	184	267	4	183	4
Invoice	140	216	4	132	4
Com-10(envelope)	105	241	4	97	4
C5(envelope)	162	229	4	154	4
Monarch(envelope)	98	191	4	90	4
DL(envelope)	110	220	4	102	4
ISO B5(envelope)	176	250	4	168	4

(6) Warm-up

Warm-up time	less than 80 seconds
Pre-heat requirement	Required
Jam recovery time	Target: about 30 seconds (Under standard condition of 60 seconds left after side cover opening, polygon motor halt)

(7) Power source

Voltage	100V system	200V system
	100-127V	220-240V
Frequency	50/60Hz	50/60Hz

(8) Power consumption

	AR-M350U/N	AR-M450U/N
Max. Power consump.	1440W	1440W

(9) Energy Star benchmark

	AR-M350U/N	AR-M450U/N
Low power mode	40W	75W
Transition time to Low power mode	60min	60min

(10) Noise

	AR-M350U/N	AR-M450U/N
At working	less than 6.8B	less than 6.8B
At waiting mode	less than 5.0B	less than 5.0B

* Showing noise benchmark in each model as a whole system.

(11) Dimensions

External dimensions (WxDxH)	428x552x469 (Only main unit) (mm) 16.9"x21.7"x18.5"
Occupied space dimensions (WxD)	963x685 (mm) *1 25.7"x22.3"
Weight	AR-M350U/M450U:Approx.38.9kg (Only main unit) Approx.99kg *1 AR-M350N/M450N:Approx.39.9kg (Only main unit) Approx.100kg *1

*1: With B/W scanner module/DSPF, Scanner rack, Large capacity paper feed desk, Power supply unit and Upper exit tray extension

B. Document Feeding Equipment

(1) One-drawer tray (included in the base engine)

Paper feed method	One-drawer tray	
Sizes to be fed	A4, B5, 8.5" x 11"	
Paper capacity	500 sheets (at 80g/m²)	
Media available for paper feeding	Plain paper 60 - 105g/m², 16 - 28lbs	
Paper type	Plain, recycled, pre-printed, pre-punched, color, letter head	
Paper size switching	To be switched by user (paper size to be entered from the operation panel).	
Dehumidification heater	Not provided	
Balance detection	Provided (paper empty and 3 steps)	
Default size setting	100V system	200V system
	8.5" x 11"	A4
Mounting/demounting of the tray	Provided	

C. Output Equipment

(1) Face-down Exit Tray (included in the base engine)

Output position/ method	Face-down output at the upper side of main unit
Output paper capacity	400 sheets (80g/m² sheet)
Output paper size	A3, B4, A4, A4R, B5, B5R, A5R 11 " x 17", 8.5" x 14", 8.5" x 13", 8.5" x 11 ", 8.5" x 11 "R, 5.5" x 8.5"R Executive, postal card, Monarch (98 x 191) Com-10 (105 x 241), DL (110 x 220), C5 (162 x 229), ISO B5 (176 x 250)
Spec of media for paper output	Tracing paper : 52 ~ 59g/m² / 14 ~ 15lbs Plain paper : 60 ~ 128g/m² / 16 ~ 34lbs Index paper : 176g/m² / 47lbs Cover paper : 205g/m² / 54 ~ 55lbs Transparency firm
Remaining paper detection	Not provided
Exit tray full detection	Provided

2. Specific Function

A. Printer Function

(1) Platform

IBM PC/AT (Include compatible machine) Macintosh (680x0), Power Macintosh, iMac, G3Macintosh

* For Macintosh OS, the PS3 expansion kit and NIC card are required.

(2) Support OS

Custom PS	Windows 95/98/Me/XP
	Windows NT 4.0 Windows 2000
Custom PCL5e/6(XL) SPDL	Windows 95/98/Me/XP
	Windows NT 4.0 Windows 2000
PPD	Windows 95/98/Me/XP
	Windows NT 4.0 Windows 2000
	Mac OS 8.5.1 - Mac OS 9

* For Macintosh OS, the PS3 expansion kit and NIC card are required.

(3) PDL emulation

PCL6, PCL5e compatible, PostScript Level 2, PostScript 3 compatible (PS3 expansion kit is required.)

(4) Print Function

a. General

		When an optional PS3 expansion kit is installed		
Function	PCL5e/ PCL6	PS	PPD (Windows)	PPD (Macintosh)
Copies	1 - 999	1 - 999	1 - 999	1 - 999
Orientation	Yes	Yes	Yes	Yes
Duplex print	Yes	Yes	Yes	Yes
Saddle stitch	Yes	Yes	No	N/A
Binding edge	Left/top/ right	Left/top/ right	Long/short	Long/short
N-up	2/4/6/8	2/4/6/8	2/4*3*4	2/4/6/9/16
N-up direction	Fixed	Fixed	Fixed	Selectable
N-up border line	Yes	Yes	Yes(always)	Yes

b. Paper input

		When an optional PS3 expansion kit is installed		
Function	PCL5e/ PCL6	PS	PPD (Windows)	PPD (Macintosh)
Paper size	Yes	Yes	Yes	Yes
Custom paper size	1 size	1 size	3 sizes*3*5	N/A
Source selection	Yes	Yes	Yes	Yes
Different first page	Yes	Yes	N/A	Yes
Transparency inserts	Yes	Yes	N/A	Yes

c. Paper output

		When an optional PS3 expansion kit is installed		
Function	PCL5e/ PCL6	PS	PPD (Windows)	PPD (Macintosh)
Output tray selection	Yes	Yes	Yes	Yes
Mail bin	Yes	Yes	Yes	Yes
Staple	Yes	Yes	Yes	Yes
Offset	Yes	Yes	Yes	Yes
Punch	Yes	Yes	Yes	Yes

d. Graphic

		When an optional PS3 expansion kit is installed		
Function	PCL5e/ PCL6	PS	PPD (Windows)	PPD (Macintosh)
Resolution	600/300 dpi	600 dpi	600 dpi	600 dpi
Halftone	N/A	Yes	Yes	N/A
Graphic mode	Yes	N/A	N/A	N/A
Smoothing	Yes	Yes	Yes	Yes
Toner save	Yes	Yes	Yes	Yes
Photo enhancement	Yes*8	Yes	N/A	N/A
Negative image	N/A	Yes	Yes	Yes
Mirror image	N/A	Horizontal/ vertical	Horizontal	Yes
Zoom	N/A	N/A	Yes	Yes
Fit to page	Yes	Yes	N/A	N/A

e. Font

		When an optional PS3 expansion kit is installed		
Function	PCL5e/ PCL6	PS	PPD (Windows)	PPD (Macintosh)
Resident font	45 fonts	136 fonts	136 fonts*6	35 fonts
Download font	Bitmap TrueType, Graphic	Bitmap Type1 TrueType	Bitmap Type1 TrueType	N/A

f. Others

		When an optional PS3 expansion kit is installed		
Function	PCL5e/ PCL6	PS	PPD (Windows)	PPD (Macintosh)
Watermark*7	Yes	Yes	Yes	Yes
Overlay	Yes	Yes	N/A	N/A
Job retention*1	Yes	Yes	N/A	Yes
Account control	Yes	Yes	N/A	Yes
Custom settings	Yes	Yes	N/A	N/A
Automatic configuration*2	Yes	Yes	N/A	Yes
Job end notification	Yes	Yes	N/A	N/A

* 1 In the models without a hard disk drive, an optional hard disk drive must be installed .
* 2 Functions when peripheral devices are installed.
* 3 Not supported in the Windows NT 4.0 environment.
* 4 2/4/6/9/16 is supported in the Windows 2000 environment.
* 5 Only one size is supported in the Windows 2000 environment.
* 6 Only 35 fonts are supported in the Windows NT 4.0 environment.
* 7 This function is limited for PPD.
* 8 PCL6 only

(5) Compatibility

PCL 5e compatibility	Target for PCL5e is to be compatible with HP LaserJet 4000. Small margin difference, rendering difference by different font family, default and transfer function difference are not to be included in the compatibility. All the PJL commands are not necessarily included in the compatibility.
PCL6 compatibility	Target for PCL6 is to be compatible with HP LaserJet 4000. Small margin difference, rendering difference by different font family, default and transfer function difference are not to be included in the compatibility. All the PJL commands are not necessarily included in the compatibility.
PostScript Compatibility	Roman PostScript is targeted to be compatible with Adobe PostScript as performed in HP LaserJet 4000. Small margin difference, rendering difference by different font family, default and transfer function difference are not to be included in the compatibility.

B. Expanded RAM

Installation of an expanded RAM will avoid the following status.

1) Time out error reduction
2) Spool time reduction
3) Avoidance of VM error / memory full

Use commercially available RAM with the following specifications.

Note: If RAM used does not meet the follow specifications, the copier may not recognize the additional RAM or its capacity correctly.

<Spesification>

DIMM TYPE	168pin 3.3V Unbuffered SDRAM DIMM Non-ECC
DIMM capacity	64MByte, 128MByte, 256MByte
CAS LATENCY	CL=2
SDRAM CLOCK	For PC100, PC133
SPD	Supporting
Parity	Not support
ECC	Not support

<Operation-assured Memory> (As of March / 2001)

Manufacture	Capacity	Model name	RAM CHIP name	Note
Kingston Technology	128MB	KVR133X64C3/ 128	HYB39S64800BT -7.5	
	128MB	KVR133X64C3 -128	D456821G-A75 -9JF	
	256MB	KVR133X64C3 -256	HY57V28820AT-H	
Viking Compornents	64MB	VIK8641CL2	µPD456841G5 -A80-9JF	
	64MB	VIK8641CL2	D456841G5-A80 -9JF	
	128MB	VIK6642CL2	TC59SM708FT-80	
	128MB	VIK6642CL2	D4564841G5-A80 -9JF	
	256MB	VIK2642CL2	TC59SM708FT-80	
Memory Card Technology	64MB	DM864VS65804X -7G	GM72V66841XT75	
	128MB	DM1665VS65804 X-7G	HY57V64820HG	

C. Scanner function

*Scanner function, the NIC card and Network Scanner kit are required.

(1) Scanner function

Scanner mode	Scan to E-mail (Internet FAX) Scan to Server (Client PC)

(2) Support System

Embedded server	SMTP server FTP server
Protocol	TCP/IP

(3) Support Image

Format	TIFF, PDF, TIFF-F * Selectable for each page
Compression method	Uncompressed, G3(1-dimension) *1, G4 *2 *1 G3 (1-dimension) = MH (Modified Huffman) *2 G4 = MMR (Modified MR)

(4) Transmission Mode

DSPF/OC transmission switching	Available (Switching during the reading is not feasible)

(5) Image Process

Half tone reproduction	Equivalent to 256 levels
Exposure adjustment	Light / Auto / Dark
Quality selection	Half-tone ON/OFF
Resolution*	Normal (200x200dpi) Fine (300x300dpi) Super fine (400x400dpi) Ultra fine (600x600dpi) Varies with the file type/transmission method

(6) Original Memory

Standard	Commonly use ERDH area of memory.
Memory expansion	Special : As per ERDH memory

(7) Specified Destination

Specified destination	Specifying by one-touch or group
One-touch*	Max. 500 destinations (in conjunction with the one-touch dial of FAX) Max. 100 destinations can be registered for FTP and Desktop.
Group*	To be registered in one-touch
Program	Available

(8) Specified Multiple Destinations

Specified destination	Specifying by one-touch or group
No. of registration	Max. 300 items (in conjunction with those of FAX)
Sequential broadcasting	Available (E-mail only. It is not available for FTP/Desktop.)
Simultaneous FAX transmission	Available (Specifying multiple destinations of FAX, E-mail or FTP and broadcasting by a single scan)

O : Available

(9) Functions

Transmitting functions	Rotating transmission	Available (to be matched with FAX specification)
	Long length original transmission	Not Available
	Verification stamp function	Option
Report/list functions	Transmit/receive record	Available
	Transmit/receive result	Available
	Address/phone directory list	Available
	Group list	Available
	ID/sender list	Available
	Program list	Available

D. Copy function

(1) Copy Speed

	AR-M350U/N			AR-M450U/N		
	Actual	Reduction	Enlargement	Actual	Reduction	Enlargement
A4, 8.5"x11"	35	35	35	45	45	45
A4R, 8.5"x11"R	25	25	25	30	30	30
A5R, 5.5"x8.5"R, Invoice-R	35	35	35	45	45	45
B5	35	35	35	45	45	45
B5R, Exective-R	25	25	25	30	30	30
B4, 8.5"x14"	20	20	20	22	22	22
A3, 11"x17"	17	17	17	20	20	20
Extra, Envelope	17	17	17	20	20	20
Japan P/C	In case of printing on post card, engine speed can vary with system configuration, because next paper is fed after machine completely output previous page.					

* Figures in reduction/enlargement are represented by those at the ratio to show slowest speed

(2) First Copy Time

Conditions: A4 or 8.5"x11"P from front tray of PPC, without HDD and with polygon motor running.

	AR-M350U/N	AR-M450U/N
Document glass *1	Less than 5.3 seconds	Less than 4.6 seconds
DSPF	Less than 6.0 seconds	Less than 5.3 seconds

*1 During OC/high-speed mode

(3) Job Speed

	AR-M350U/N	AR-M450U/N
S → S *1	33 cpm (94%)	42 cpm (93%)
S → D *2	32 cpm (91%)	40 cpm (88%)
D → D *3	32 cpm (91%)	40 cpm (88%)

*1 S → S : A4 / 8.5" x 11"P original 5 sheets copy 5sets
*2 S → D : A4 / 8.5" x 11"P original 10 sheets copy 5sets
*3 D → D : A4 / 8.5" x 11"P original 5 sheets (10 pages) copy 5sets

Note: First copy time has been factored into calculation resulting in reduced CPM.

(4) Continuous Copy

Max. multiple number	999 pages

(5) Copy Ratio

Copy ratio	AB series : 25%, 70%, 81%, 86%, 100%, 115%, 122%, 141%, 400% Inch series : 25%, 64%, 77%, 100%, 121%, 129%, 400%
Zoom	25 - 400% 25 - 200% (Copy from DSPF)
Independent scaling	Not provided

(6) Exposure/Copy Quality Process

Exposure mode	Binary: Text(auto/manual), Text/photo, Photo 256 levels: Not provided
Manual steps	9 steps
Smoothing	Standard
Toner save mode	Standard

(7) Copy Function

Function	APS	Standard Function
	AMS	Standard Function
	Paper type select	Standard Function (By type setting)
	Auto tray switching	Standard Function
	Rotation copy	Standard Function
	Electronic sort	Standard Function
	Rotation sort	Not provided
	Reserved copy	Standard Function
	Prior tray setting	Not provided
	Recall/register of program	Standard Function
	Proof copy	Not provided
	Preheat function	Standard Function (To be set up by key operator)
	Auto power shut-off function	Standard Function (To be set up by the key operator program)
	Account control	Standard Function (100 accounts)
	Communication support (RIC)	Standard Function
	Card counter support	Only provided the connector
	Coin vendor support	Only provided the connector
Special function	Margin shift	Standard Function
	Edge erase / Center erase	Standard Function
	Dual page copying	Standard Function
	Covers	Not provided
	Transparency insert	Not provided
	Centering	Not provided
	Multi shot (N in 1)	Standard Function (2 in 1 / 4 in 1)
	Pamphlet copy	Standard Function
	2-sided copy orientation change	Standard Function
	Large capacity original mode	0 (Max. 140 pages)
	B/W reverse	Not provided
	Shading	Not provided
	Mirror image	Not provided
	Repeat	Not provided
	Date stamp	Not provided
	Stamp	Not provided
	Page stamp	Not provided
	Zaurus print	Not provided

[5] CONSUMABLE PARTS

1.Supply system table

Note: The consumable parts are the same as those of the AR-M350/M450 and the AR-P350/P450.

A.USA

NO	Name	Content		Life	Product name	Remark
1	Toner CA(Black)	Toner(Toner : Net Weight 814g)		27K	AR-450NT (*1 AR-450NT-J)	*Life setup is based on A4 6%
2	Developer	Developer(Developer : Net Weight 450g)		100K	AR-450ND	
3	Drum	Drum	x1	50K	AR-450DR	
4	50K maintenance kit	Cleaner blade Drum separation pawl Screen grid Toner reception seal Side malt F Side malt R Charging plate	x1 x4 x1 x1 x1 x1 x1	50K	AR-450KC1	
5	100K maintenance kit	Transfer roller Discharging plate Paper dust removing unit DV blade DV side seal F DV side seal R	x1 x1 x1 x1 x1 x1	100K	AR-450KA1	
6	Upper heat roller kit	Upper heat roller Fusing separation pawl (Upper)	x1 x4	200K	AR-450UH	
7	Lower heat roller kit	Lower heat roller Fusing separation pawl (Lower)	x1 x2	200K	AR-450LH	
8	Cleaner blade	Cleaner blade	x10	50K(x10)	AR-450CB	AR-450CB=(AR-450BL)x10
9	Cleaning roller	Cleaning roller Bearing	x10 x20	200K(x10)	AR-450CR	AR-450CR=(AR-450RC)x10
10	Staple cartridge	Staple cartridge	x3	3000x3	AR-SC1	Common with cartridge for AR-FN4 & AR-FN6
11	Staple cartridge	Staple cartridge	x3	5000x3	AR-SC2	Common with cartridge for AR-FN7

*1: For USA Government

Note1: Print on Master/individual carton:Toner/Developer in 2 languages (English/French), DR in 4 languages (English/French/German/Spanish).

Note2: Packed with machine: DR 50K/Developer UN/Process UN

Note3: The other maintenance parts which are not listed above are registered as service parts.

B.Europe

NO	Name	Content		Life	Product name	Remark
1	Toner CA(Black)	Toner(Toner : Net Weight 814g)		27K	AR-450T	*Life setup is based on A4 6%
2	Developer	Developer(Developer : Net Weight 450g)		100K	AR-450DV	
3	Drum	Drum	x1	50K	AR-450DM	
4	50K PM kit	Cleaner blade Drum separation pawl Screen grid Toner reception seal Side malt F Side malt R Charging plate	x1 x4 x1 x1 x1 x1 x1	50K	AR-450KC	
5	100K PM kit	Transfer roller Discharging plate Paper dust removing unit DV blade DV side seal F DV side seal R	x1 x1 x1 x1 x1 x1	100K	AR-450KA	
6	200K PM kit	Upper heat roller Lower heat roller Fusing separation pawl (Upper) Fusing separation pawl (Lower) Cleaning roller Bearing	x1 x1 x4 x2 x1 x2	200K	AR-450KB	
7	Staple cartridge	Staple cartridge	x3	3000x3	AR-SC1	Common with cartridge for AR-FN4 & AR-FN6
8	Staple cartridge	Staple cartridge	x3	5000x3	AR-SC2	Common with cartridge for AR-FN7

Note1: Print on Master/individual carton:4 languages (English/French/German/Spanish).

Note2: Packed with machine: DR 50K/Developer UN/Process UN

Note3: The other maintenance parts which are not listed above are registered as service parts.

2.Production number identification

A. Drum cartridge

The lot number, printed on the front side flange, is composed of 10 digits, each digit showing the following content:

1	2	3	4	5	6	7	8	9	10

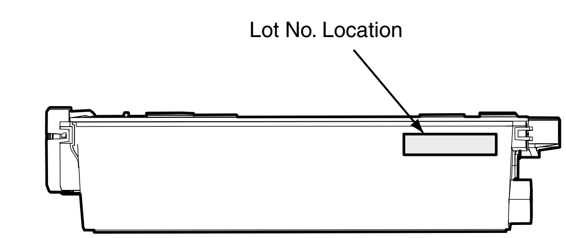
1 Number
For this model, this digit is 2.
2 Alphabet
Indicates the model conformity code. T for this model.
3 Number
Indicates the end digit of the production year.
4 Number or X, Y, Z
Indicates the production month.
X stands for October, Y November, and Z December.
5/6 Number
Indicates the production day on the month.
7 Number or X, Y, Z
Indicates the month of packing.
X stands for October, Y November, and Z December.
8/9 Number
Indicates the day of the month of packing.
10 Alphabet
Indicates the production factory. "A" for Nara Plant.

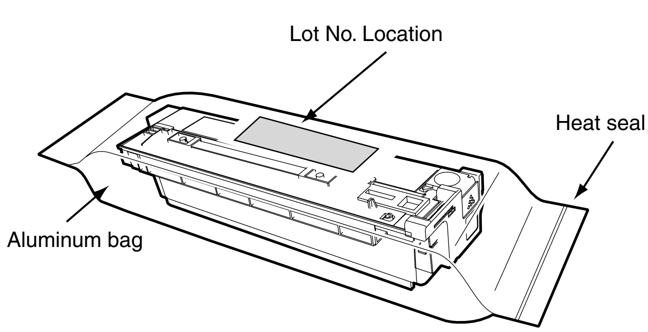
B. Toner cartridge

The lot number is composed of 7 digits, and each digit indicates as following.
The lot number shall is printed in the position shown below.

1	2	3	4	5	6	7

1 Version number (A - sequentially revised)
2 Numeral figure
Indicates the end digit of the production year.
3 Alphabet
Indicates the production factory. (B for SOCC)
4 Destination code
5,6 Numeral figures
Indicates the production day.
7 Numeral figure or X, Y, Z
Indicates the production month.
X stands for October, Y November, and Z December.





C. Developer

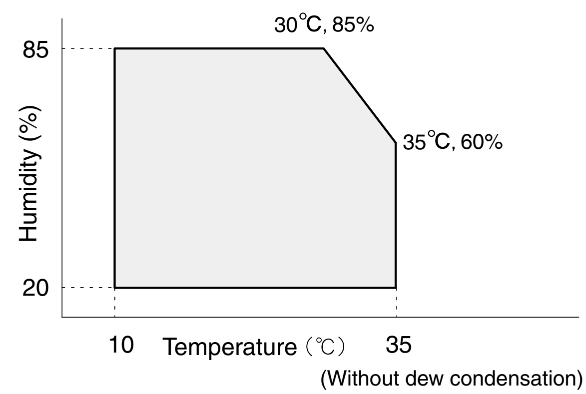
The lot number is composed of 8 digit, and each digit indicates as following.
The lot number shall be printed on the bag.

1	2	3	4	5	6	7	8

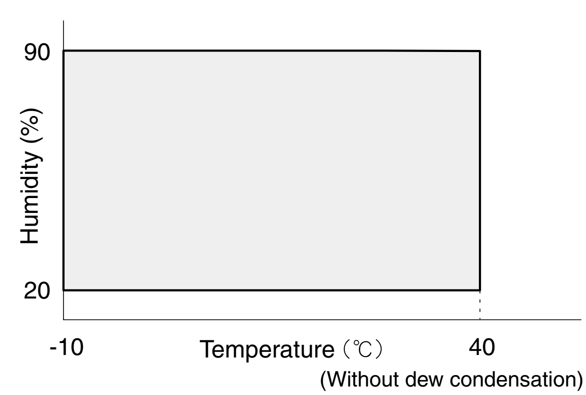
1 Alphabet
Indicates the production factory.
2 Figure
Indicates the production year.
3/4 Figure
Indicates the production month.
5/6 Figure
Indicates the production day.
7 Hyphenation
8 Figure
Indicates the production lot.

3. Environmental conditions

A. Operating conditions



B. Storage conditions

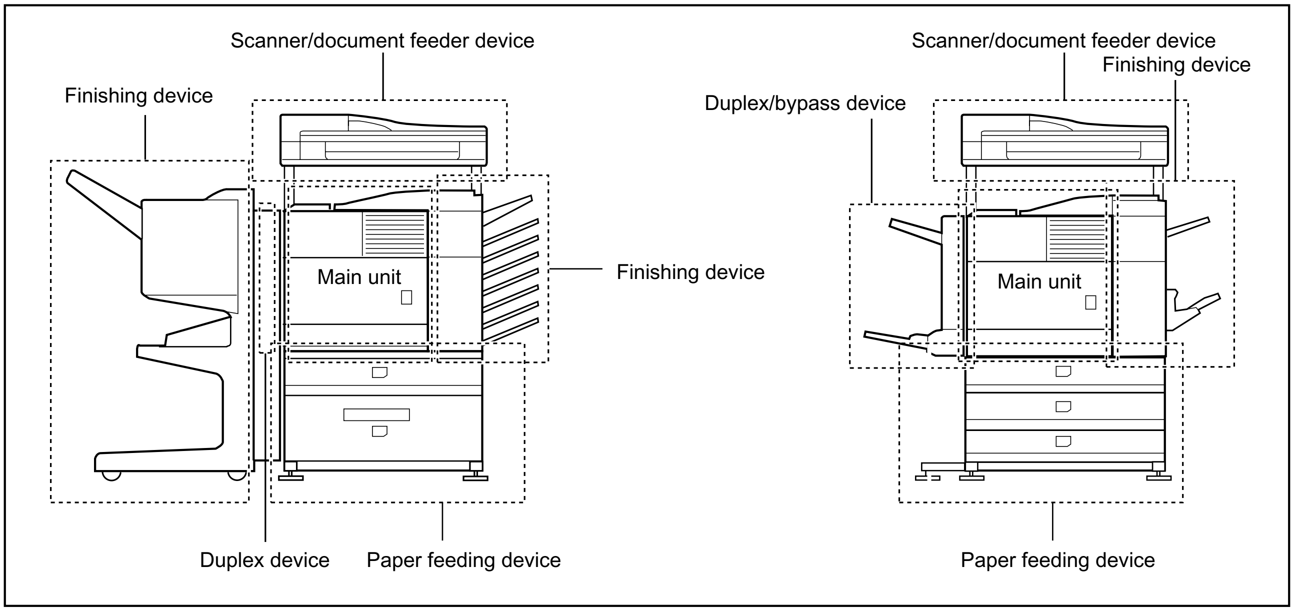


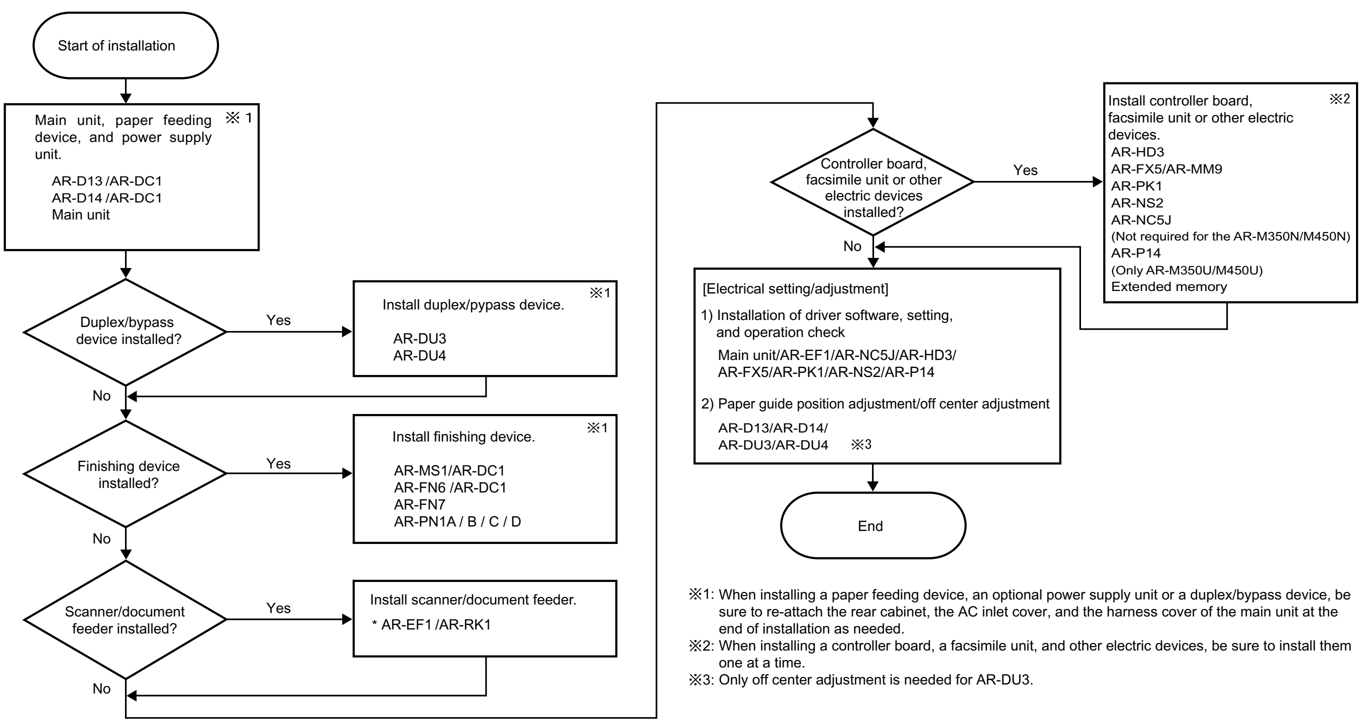
[6] UNPACKING AND INSTALLATION

1. Installing procedure flowchart

There are many combinations between this machine and option units. For installing option units, observe the following procedures for efficiency.

To install the devices efficiently, follow the procedure below.
Some peripheral devices may have been installed as standard devices depending on the main unit model.
Part of descriptions and illustrations may be different.





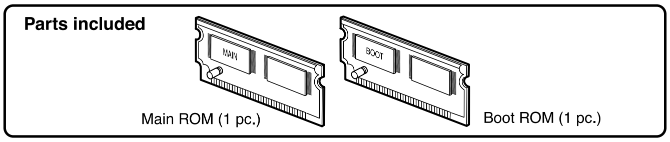
※1: When installing a paper feeding device, an optional power supply unit or a duplex/bypass device, be sure to re-attach the rear cabinet, the AC inlet cover, and the harness cover of the main unit at the end of installation as needed.
※2: When installing a controller board, a facsimile unit, and other electric devices, be sure to install them one at a time.
※3: Only off center adjustment is needed for AR-DU3.

* When installing an option, refer to the Service Manual for that option and or the AR-M350 / M450 Service Manual.

2. AR-P14 installing procedure

<Before installation>

* This installation procedure is provided for use with the AR-M350U/M450U series.
* To connect this machine to a network, a Print Server Card (NIC) AR-NC5J must be installed to the multi-function controller board in advance.



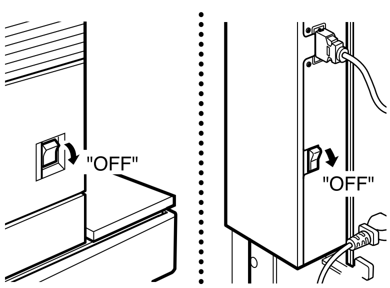
* To enable the printer expansion function, the product key must be acquired.

The application number, machine serial number, and product key number are important information.
Keep the above information for future reference.

1) Mount the printer expantion kit ROMs to the control PWB.

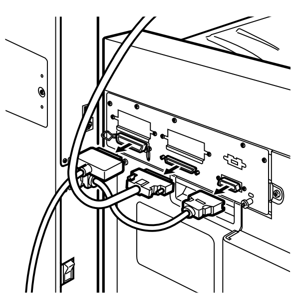
<1>Turn off the main switch of the main unit of the printer

Turn the main switch located on the front side of the main unit to the "OFF" position.
If the machine is equipped with a facsimile unit, also turn off the FAX power switch.
Then remove the power plug from the outlet.
.



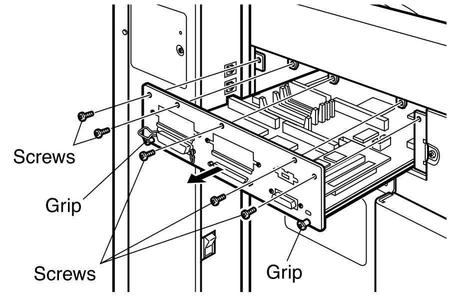
<2>Remove the cables connected to the control PWB unit.

Remove all the cables connected to the control PWB unit of the main unit of the printer.



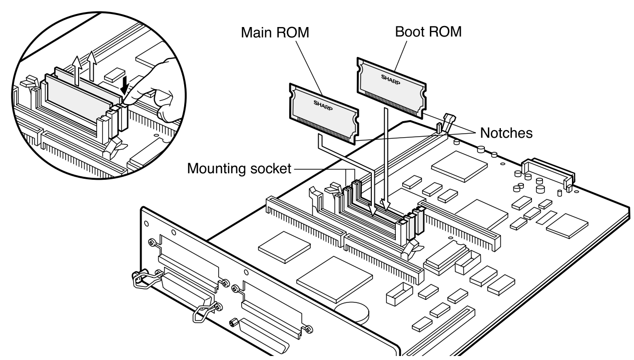
<3>Remove the control PWB unit.

Remove the five screws that fix the control PWB unit to the main unit of the printer.
Then, hold the two grips and pull out the control PWB unit to remove it from the main unit.



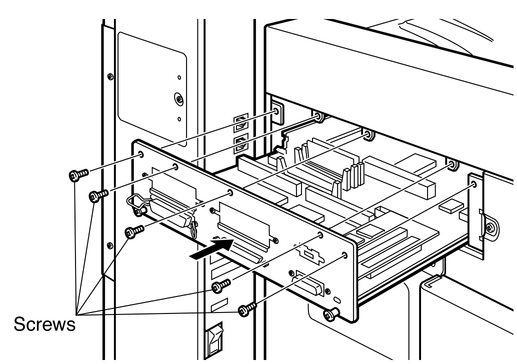
<4>Mount the printer expansion kit ROMs(2 pcs.)to the control PWB.

Remove the ROMs(main and boot ROMs)from the control PWB and replace them with the two ROMs(main and boot ROMs)of the printer expansion kit.
The main and boot ROMs are indicated with "MAIN" and "BOOT" on the labels on the ROMs respectively.
When mounting the printer expansion kit ROMs, insert them to the same positions in the same direction as those before replacement and ensure that the inserted printer expansion kit ROMs are locked with the fittings of the sockets.



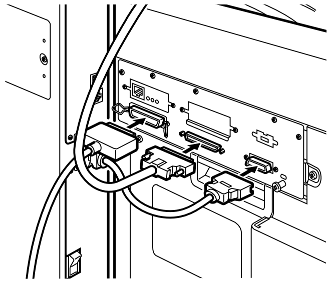
<5>Re-attach the control PWB.

Attach the control PWB to the main unit of the printer and fix it using five screws.



<6>Connect the cables to the control PWB.

Connect all the cables that have been removed in <2> to the original positions of the control PWB unit.



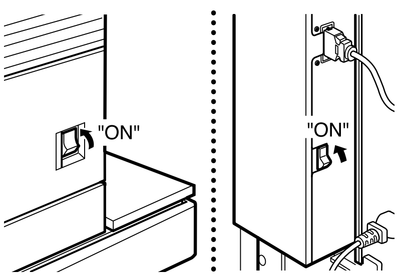
If another peripheral device must be installed, carry out the following steps at the end of the installation work.

2) Turn on the main switch of the main unit of the printer.

Insert the power plug of the main unit of the printer to the outlet.

Then, turn the main switch located on the front side of the main unit to the "ON" position.

If the machine is equipped with a facsimile unit, turn on the FAX power switch.



3) Prepare to enable the printer expansion function.

To enable the printer expansion function, use the keys on the operation panel to enter the product key.

For entry of the product key, see the key operator's guide of the operation manual for the main unit.

Carry out the network setting for the Print Server Card.

Use a key operator program to carry out the network setting for this machine. For this network setting, the customer's network environment must be checked. Consult the network administrator to carry out the setting.

In addition to the network setting for this machine, to use the machine in the network environment:

According to the customer's network environment, install the driver software from the CD-ROM supplied with this machine and use the utility software supplied with the Print Server Card to set the network printer for the server computer.

For installation in the server computer and network setting, see the operation manual supplied with the main unit.

This setting must be carried out by the network administrator or based on consultation with the network administrator.

4) To check the operation of the printer expansion function.

When the network settings and the driver settings are complete, perform a test print to check if printing can be performed successfully.

(When test printing is completed successfully, use the "list print" key operator program to print the network settings and keep the printout for future reference.)

Installation of AR-P14 is now complete.

[7] MAINTENANCE

1. Self print of set values

Use SIM 22-6 to print the set values (machine settings) and jam history.
These values must be printed before execution of maintenance or disassembly procedures.

2. Maintenance System Table

The maintenance system table is the same as that of the AR-M350/M450.

A. Scanner / DSPF

Maintenance cycle : 50K

× Check (Clean, replace, or adjust as necessary.) ○ Clean ▲ Replace △ Adjust ☆ Lubricate □ Move position

Unit name	Part name		When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Optical section	Mirror/Lens/Reflector/Sensors		○	○	○	○	○	○	○	○	○	
	Table glass/OC		○	○	○	○	○	○	○	○	○	
	White reference glass		○	○	○	○	○	○	○	○	○	
	Rails			☆	☆	☆	☆	☆	☆	☆	☆	
	Drive belt/Drive wire/Pulley			×	×	×	×	×	×	×	×	
DSPF	Paper feed section	Take-up roller	○	○	▲	○	▲	○	▲	○	▲	Note 2
		Separation pad	○	○	▲	○	▲	○	▲	○	▲	Note 2
		Paper feed roller	○	○	▲	○	▲	○	▲	○	▲	Note 2
	Transport section	PS roller	○	○	○	○	○	○	○	○	○	
		Exposure section (Dust-proof glass)	○	○	○	○	○	○	○	○	○	
	Paper exit section	Paper feed roller SPF	○	○	○	○	○	○	○	○	○	
	Other	Sensors			○		○		○		○	For cleaning, blow air.
	Finish stamp section [Option] (Japan only)	Stamp solenoid									▲	
		Stamp individual part	×	×	×	×	×	×	×	×	×	User replacement at 10K or 1 year.

Note 2: Replacement reference: Same as above or 2 years.

B. Engine section

* For disassembly procedures, refer to the AR-P350/P450 Service Manual.

Maintenance cycle : 50K

× Check (Clean, replace, or adjust as necessary.) ○ Clean ▲ Replace △ Adjust ☆ Lubricate □ Move position

Unit name	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Drum peripheral	Drum		▲	▲	▲	▲	▲	▲	▲	▲	Installed when shipping
	Cleaner blade		▲	▲	▲	▲	▲	▲	▲	▲	
	Toner reception seal		▲	▲	▲	▲	▲	▲	▲	▲	
	Side molt		▲	▲	▲	▲	▲	▲	▲	▲	
	Transfer roller	×	×	▲	×	▲	×	▲	×	▲	
	Discharge plate	×	×	▲	×	▲	×	▲	×	▲	
	TR bearing (F/R)			×		×		×		▲	
	Transfer roller collar			×		×		×		▲	
	After-transfer star ring			×		×		×		×	
	TR gear	×	×	×	×	▲	×	×	×	▲	
	Screen grid	(○)×	▲	▲	▲	▲	▲	▲	▲	▲	
	Drum separation pawl UN		▲	▲	▲	▲	▲	▲	▲	▲	
	Charger case (M/C)		○	○	○	○	○	○	○	○	
	Charging plate (saw teeth)	(○)×	▲	▲	▲	▲	▲	▲	▲	▲	
Developing section	Developer		×	▲	×	▲	×	▲	×	▲	Supplied when installing
	DV blade		×	▲	×	▲	×	▲	×	▲	
	DSD collar		○	○	○	○	○	○	○	○	
	DV side seal F		×	▲	×	▲	×	▲	×	▲	
	DV side seal R		×	▲	×	▲	×	▲	×	▲	
	Toner cartridge										Attached when installing./ EX Japan: 814g, user replacement for every 27K.
Fusing section	Upper heat roller		○	○	○	▲	○	○	○	▲	
	Lower heat roller		○	○	○	▲	○	○	○	▲	
	Upper separation pawl		▲	▲	▲	▲	▲	▲	▲	▲	
	Lower separation pawl		▲	▲	▲	▲	▲	▲	▲	▲	
	Thermistor		○	×	○	×	○	×	○	×	Clean and remove paper dust.
	Upper heat roller gear		×	×	×	▲	×	×	×	▲	
	Paper guides	○	○	○	○	○	○	○	○	○	
	Gears		☆	☆	☆	☆	☆	☆	☆	☆	
	Cleaning roller		×	×	×	▲	×	×	×	▲	
	CL roller collar					▲				▲	
Filters	Ozone filter			▲		▲		▲		▲	
Paper feed section	Paper feed roller	○	○	×	○	×	○	×	○	×	Note 1
	Torque limiter	×		×		×		×		×	Note 1
Transport section Paper exit reverse section	PS follower roller	○	○	○	○	○	○	○	○	○	
	Transport rollers	○	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	
	Paper dust remover		×	▲	×	▲	×	▲	×	▲	
Drive section	Specified position	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Belts							×			
Image quality		×	×	×	×	×	×	×	×	×	
Other	Sensors			×		×		×		×	

Note 1:Replacement reference: Use the counter value of each paper feed port as the replacement reference.
Paper feed roller/Torque limiter section: 80K or 2 years

C. Peripheral devices

Maintenance cycle : 50K

× Check (Clean, replace, or adjust as necessary.)   ○ Clean   ▲ Replace   △ Adjust   ☆ Lubricate   □ Move position

Option name	Part name		When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
ADU + Manual feed	Paper feed separation section	Paper feed rollers	(○)×	○	×	○	×	○	×	○	×	Note 3
		Separation pad	(○)×	○	×	○	×	○	×	○	×	Note 3
		Torque limiter	(○)×		×		×		×		×	Note 3
	Transport section	Transport rollers	○	○	○	○	○	○	○	○	○	
		Transport paper guides	○	○	○	○	○	○	○	○	○	
	Drive section	Gears	☆		☆		☆		☆		☆	(Specified position)
		Belts							×			
	Other	Sensors	×		×		×		×		×	
Desk (Multi stage LCC) Multi purpose	Paper feed separation section	Paper feed rollers	(○)×	○	×	○	×	○	×	○	×	Note 3
		Torque limiter	(○)×		×		×		×		×	Note 3
	Transport section	Transport roller	○	○	○	○	○	○	○	○	○	
		Transport paper guides	○	○	○	○	○	○	○	○	○	
	Drive section	Gears	☆		☆		☆		☆		☆	(Specified position)
		Belts							×			
	Other	Sensors	×		×		×		×		×	
Finisher	Transport section	Transport rollers	○		○		○		○		○	
		De-curler roller	(○)×	×	○	×	○	×	○	×	○	
		Transport paper guides	○		○		○		○		○	
	Drive section	Gears	☆		☆		☆		☆		☆	(Specified position)
		Belts							×			
	Other	Sensors	×		×		×		×		×	
		Discharge brush	×		×		×		×		×	
	Staple un											Replace UN at 100K staple.
	Staple cartridge											User replacement for every 3000pcs.
Mail-bin stacker	Transport section	Transport roller	○		○		○		○		○	
		Transport paper guides	○		○		○		○		○	
	Drive section	Gears	☆		☆		☆		☆		☆	(Specified position)
		Belts							×			
	Other	Sensors	×		×		×		×		×	
		Discharge brush	×		×		×		×		×	
Saddle finisher	Transport section	Transport roller	○		○		○		○		○	
		Transport paper guides	○		○		○		○		○	
	Drive section	Gears	☆		☆		☆		☆		☆	(Specified position)
		Belts							×			
	Other	Sensors	×		×		×		×		×	
		Discharge brush	×		×		×		×		×	
	Staple UN											Replace UN at 100K staple (including the staple UN and the holder section).
	Staple cartridge											User replacement for every 5000 pcs.

Note 3: Replacement reference: Use the counter value of each paper feed port as the replacement reference.
Paper feed roller/Separation pad/Torque limiter section: 80K or 2 years

[8] SIMULATION

For the simulation, the following items have been changed.

22-10

Purpose	Adjustment, setup, operation data output, check (display)
Function (Content)	Used to check the system configuration (option, internal hardware).
Section	
Item	Spec
Operation/Procedure	The machine composition below is displayed.

```
SIMULATION 22-10
SYSTEM INFORMATION.
MACHINE: *******
SPF: *******   XXXXXXXXXXX
FINISHER : *******        MAIL BIN : *******        PUNCH : ******
DESK/LCC : *******        ADU: *******  XXXXXXXXXXXX
PROCESS TYPE : *
SYSTEM MEMORY: **MB                 HDD: ***MB  ICU F ******
NIC : *******   NSCN : ******        PS3 : ******
FAX: *******   FAX  MEMORY : **MB     HAND SET: *******
STAMP : *******
```

<List of display value>

MACHINE	Model codes
SPF	NONE/ (Model code)
FINISHER	NONE/ (Model code)
MAIL BIN	NONE/ (Model code)
PUNCH	NONE/ (Model code)
DESK/LCC	NONE/ (Model code)
ADU	NONE/ (Model code)
PROCESS TYPE	Process control spec (1, 2: AR machine 3: DM machine)
SYSTEM MEMORY	Memory capacity (MB)
HDD	Hard disk capacity (MB)
ICU	PRINTER/MFP
NIC	NONE/ (Model code)
NSCN	NONE/ (Network scanner)
PS3	NONE/ (PS3 expansion kit)
FAX	NONE/ (Model code)
FAX MEMORY	FAX expansion memory capacity (MB)
HAND SET	NONE/ (Model code)
STAMP	Finisher stamp NONE/ (Model code)

<List of machine model codes>

Item	Display	Content
MACHINE	AR-P350/350LP	
	AR-P450/450LP	
	AR-M350/350M	(Include the N model)
	AR-M450/450M	(Include the N model)
	AR-310M	
	AR-M350U	
	AR-M450U	
	AR-310S/310F	
	AR-350S/350F	
	AR-450S/450F	
SPF	-	Document feed unit not installed
	AR-EF2	Document feed unit (SPF) installed
	AR-EF1	Duplex document feed unit installed
FINISHER	-	After-work unit not installed
	AR-FN6	Built-in finisher installed
	AR-FN7	Console finisher installed
MAIL BIN	-	Mail bin not installed
	AR-MS1	Mail bin installed
Punch unit	-	Punch unit not installed
	AR-PN1A	Punch unit 2 holes
	AR-PN1B	Punch unit 3 holes
	AR-PN1C	Punch unit 4 holes
	AR-PN1D	Punch unit 4 holes wide hole
ADU	-	Duplex module not installed
	AR-DU3	Duplex module installed
	AR-DU4	Duplex module + manual feed unit installed
DESK	-	Paper feed desk not installed
	AR-MU1	Multi-purpose tray installed
	AR-D14/D15	Paper feed desk installed
	AR-D13	Tandem desk installed
ICU	PRINTER	Printer board
	AR-M11	MFP board
	AR-M12 *	MFP board (U model)
	AR-M13 *	MFP board (S model)
MEMORY	0MB	No expansion memory
	***MB	Expansion memory ***MB
HD	0MB	Hard disk not installed
	****MB	Hard disk installed (AR-HD3)
NIC	-	NIC not installed
	AR-NC5J	NIC installed
PS3 expansion kit	-	PS3 expansion kit not installed
	AR-PK1	PS3 expansion kit installed
FAX	-	FAX expansion kit installed
	AR-FX5	FAX expansion kit not installed
Network scanner	-	Network expansion kit not installed
	AR-NS2F	Network expansion kit installed
Expansion memory	-	Expansion memory for FAX not installed
	AR-MM9	Expansion memory for FAX 8MB (AR-MM9) installed
Handset	-	handset not installed
	AR-HN5	Handset installed
Finish stamp	-	Finish stamp unit not installed
	AR-SU1	Finish stamp unit installed

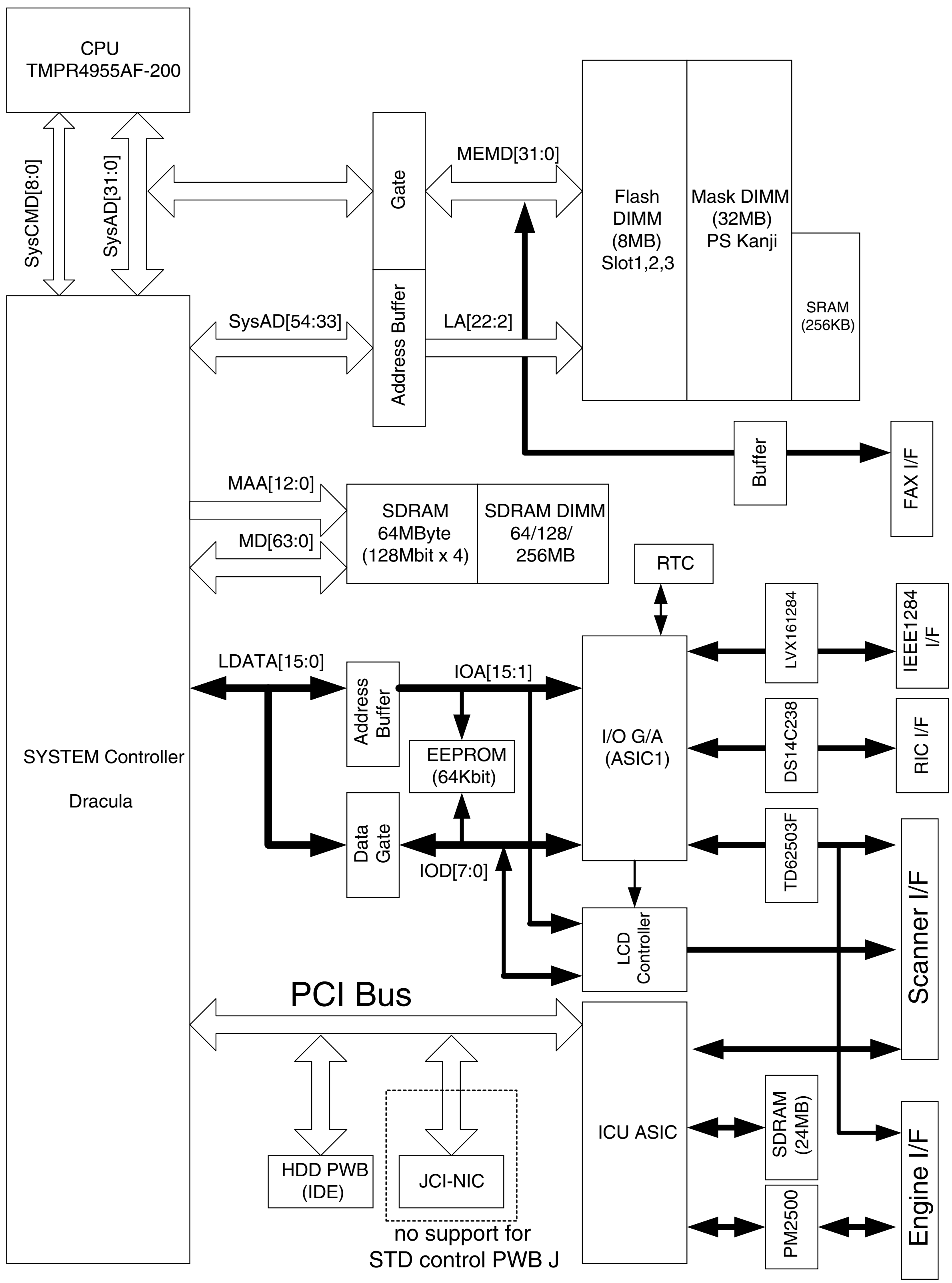
*: Not registered as a product.

[9] CIRCUIT DIAGRAM

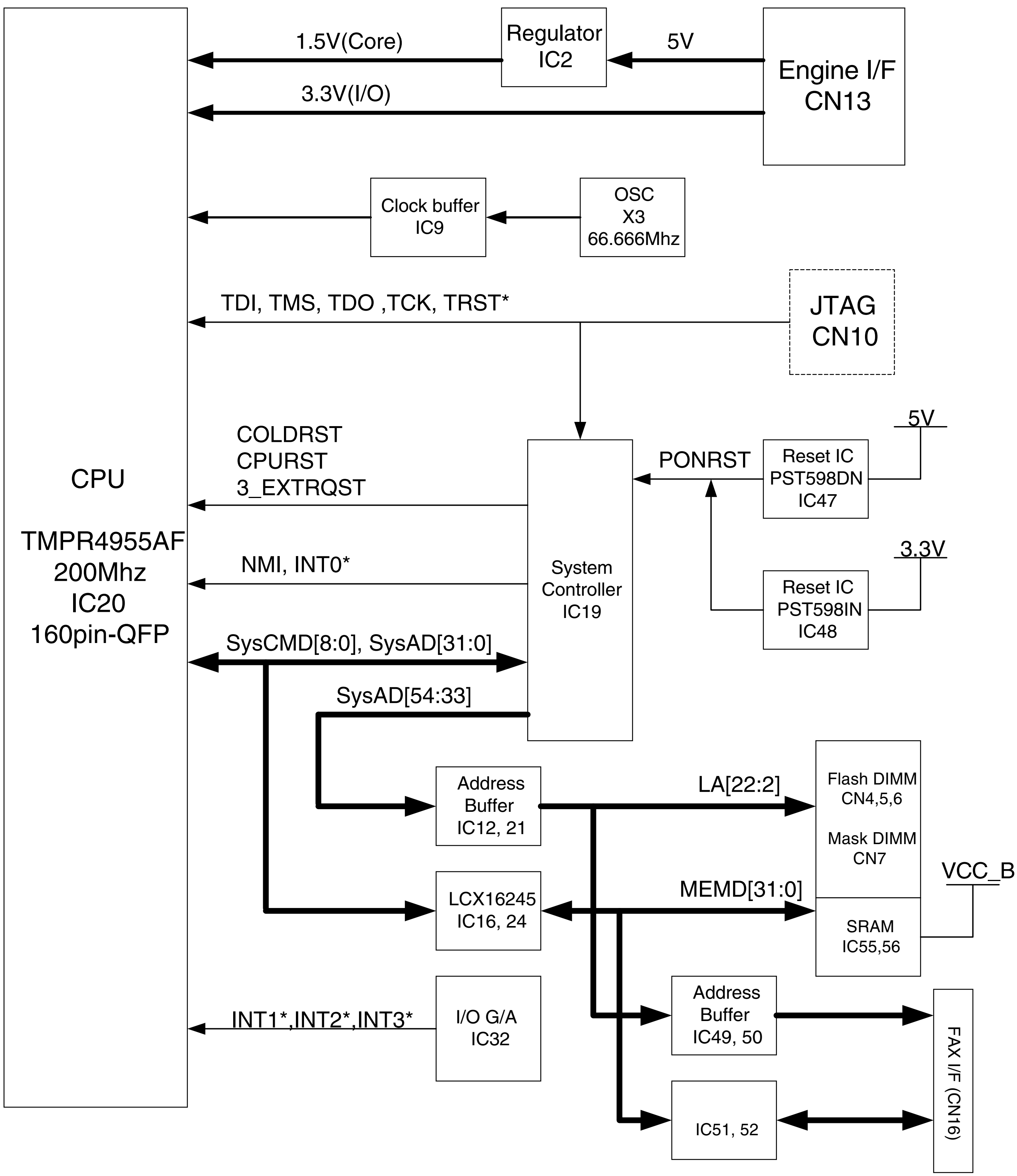
1. MFP Control PWB(for AR-M350U/M450U)

A.Block Diagrams

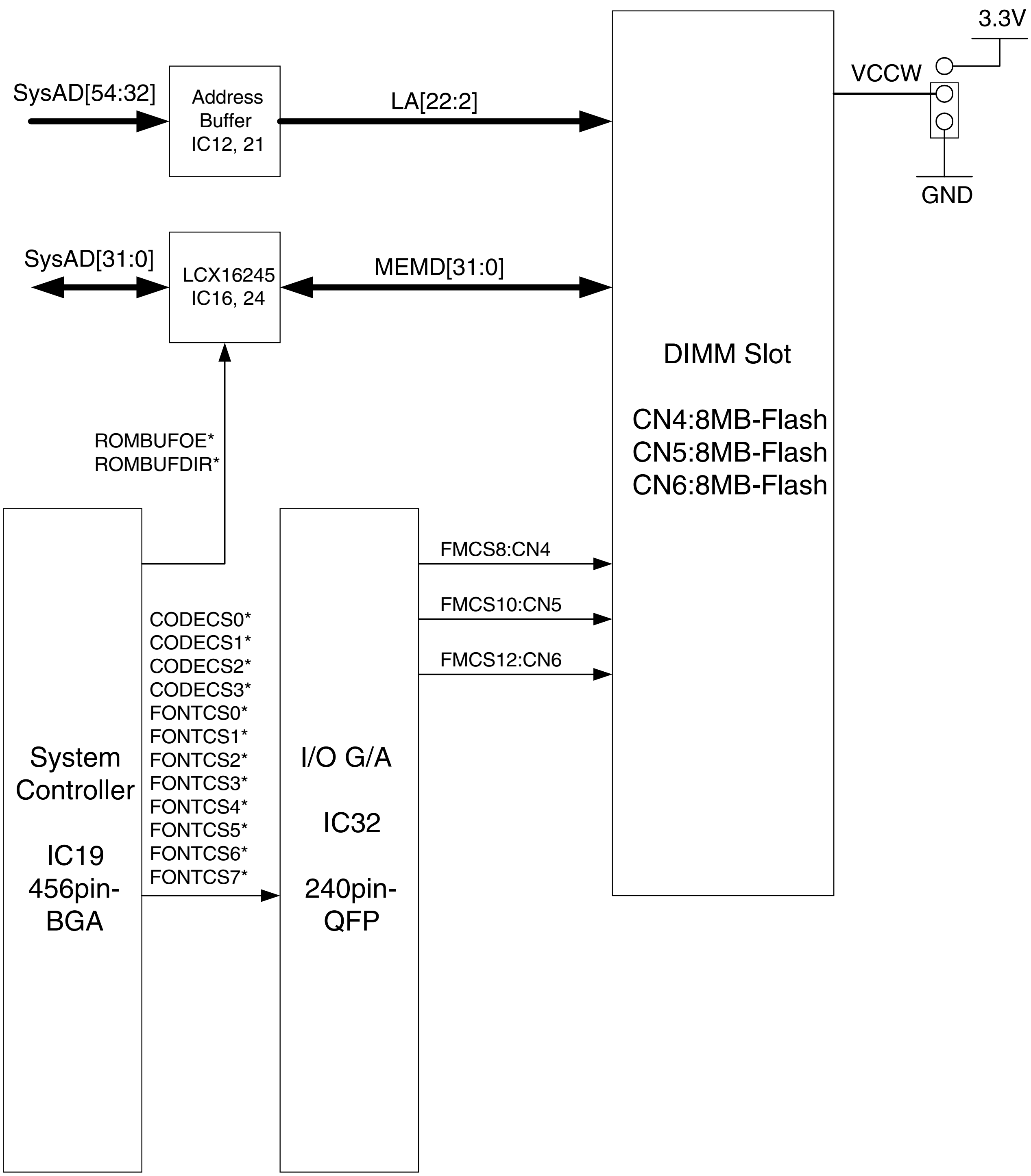
General



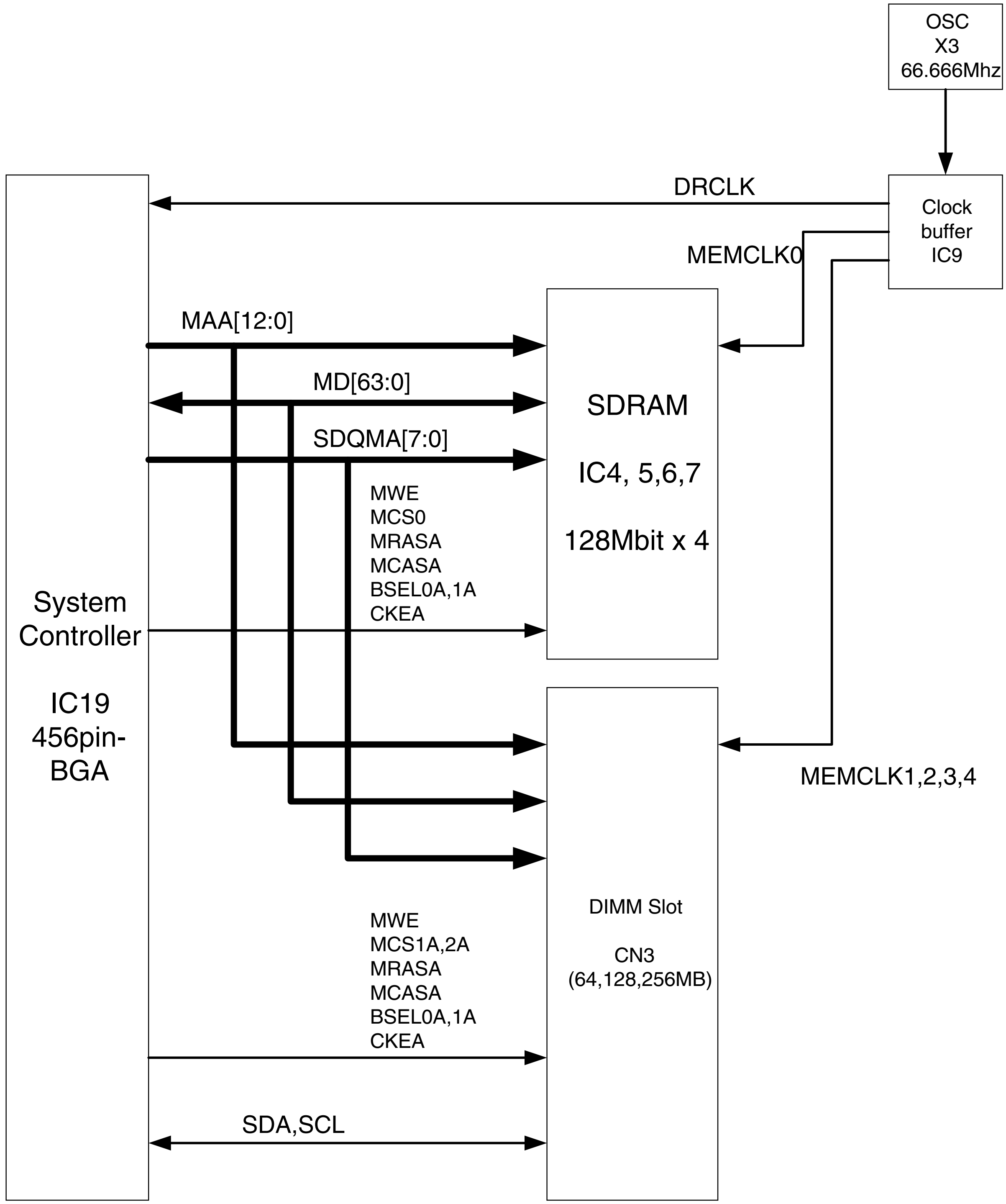
CPU Block


CPU
TMPR4955AF
200Mhz
IC20
160pin-QFP
1.5V(Core)
Regulator
IC2
5V
Engine I/F
CN13
3.3V(I/O)
Clock buffer
IC9
OSC
X3
66.666Mhz
TDI, TMS, TDO ,TCK, TRST*
JTAG
CN10
COLDRST
CPURST
3_EXTRQST
PONRST
Reset IC
PST598DN
IC47
5V
System
Controller
IC19
NMI, INT0*
3.3V
Reset IC
PST598IN
IC48
SysCMD[8:0], SysAD[31:0]
SysAD[54:33]
Address
Buffer
IC12, 21
LA[22:2]
Flash DIMM
CN4,5,6
Mask DIMM
CN7
VCC_B
LCX16245
IC16, 24
MEMD[31:0]
SRAM
IC55,56
INT1*,INT2*,INT3*
I/O G/A
IC32
Address
Buffer
IC49, 50
IC51, 52
FAX I/F (CN16)

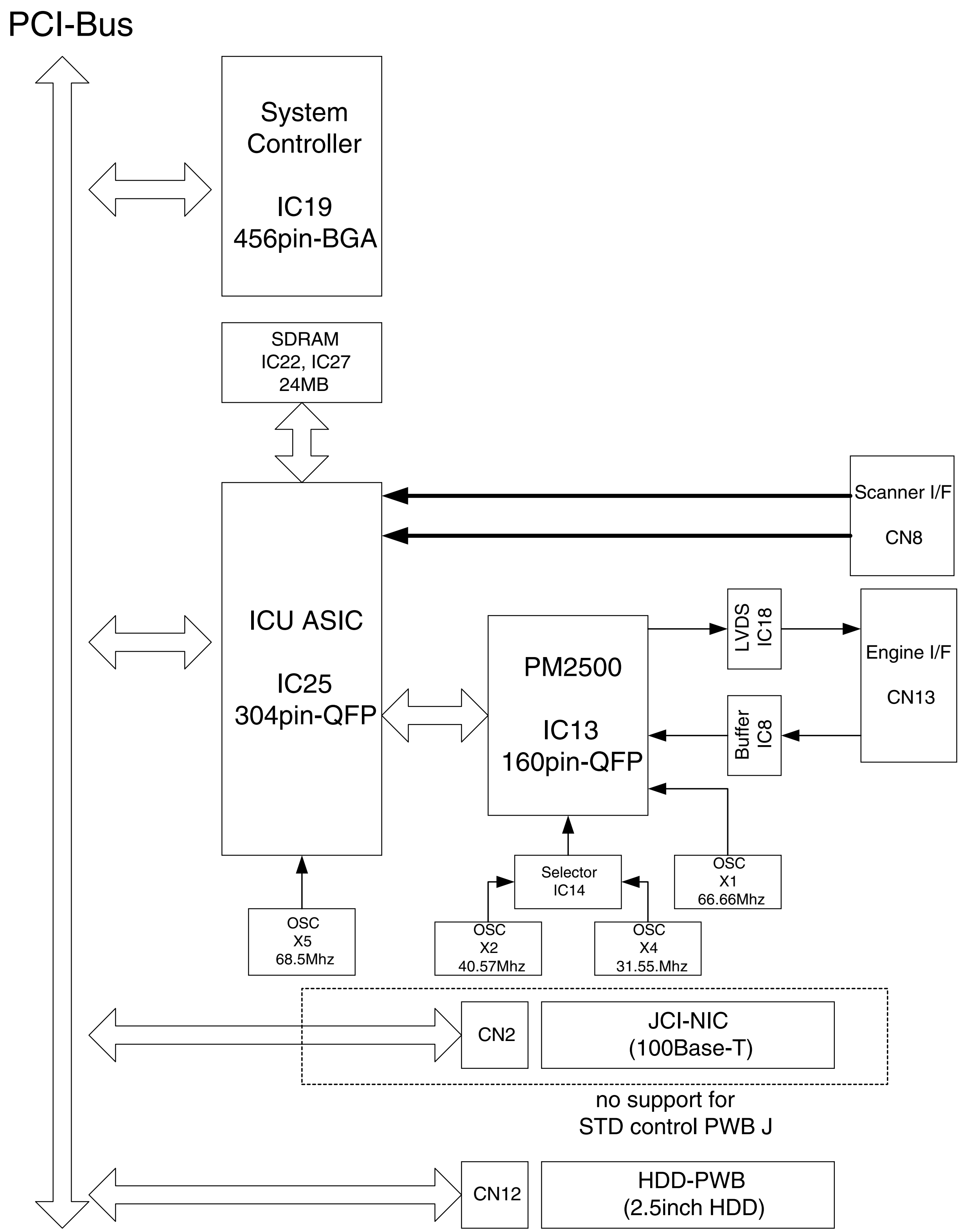
ROM Block (Flash & Mask)



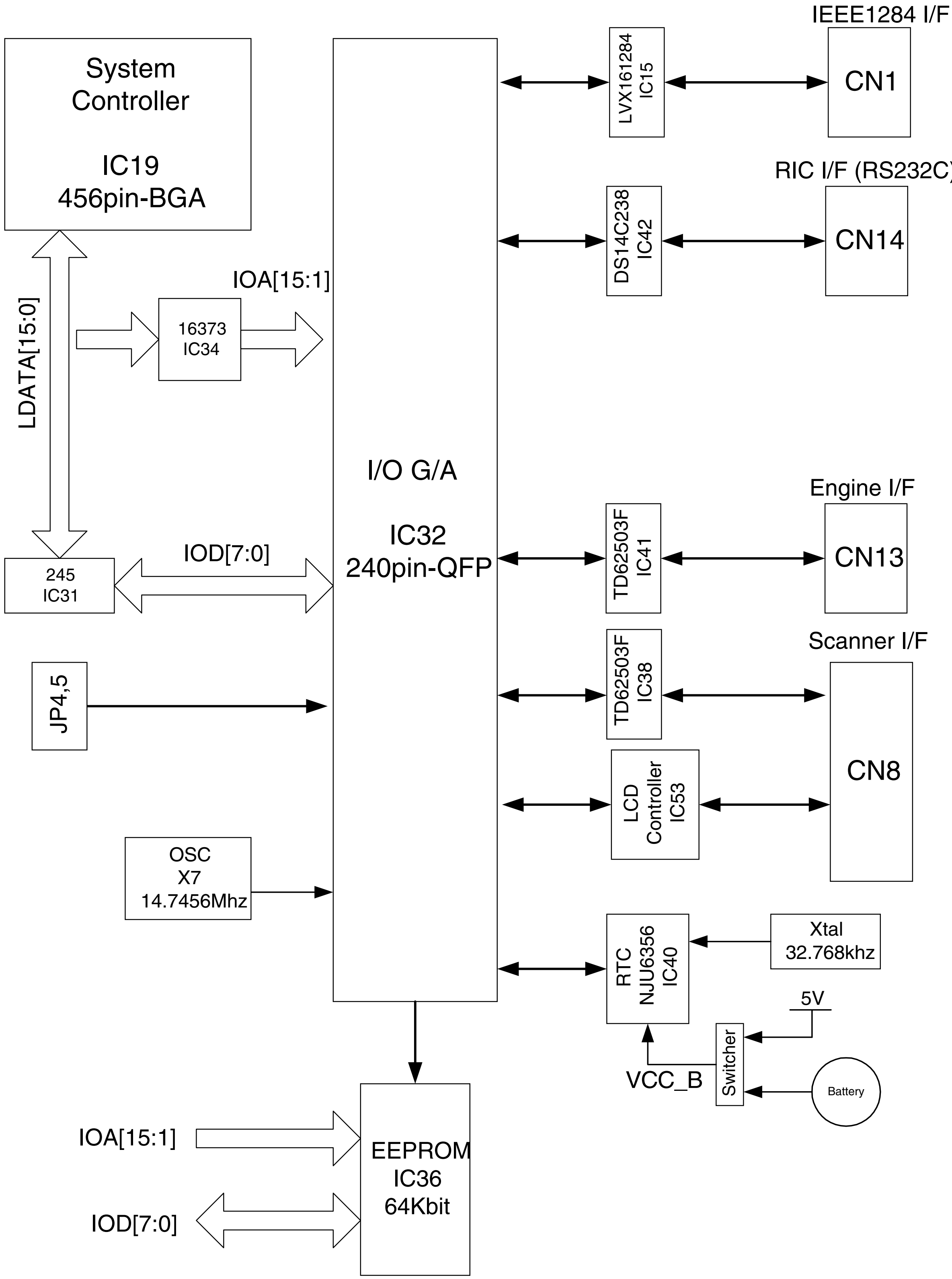
SDRAM Block (Standard & Option)



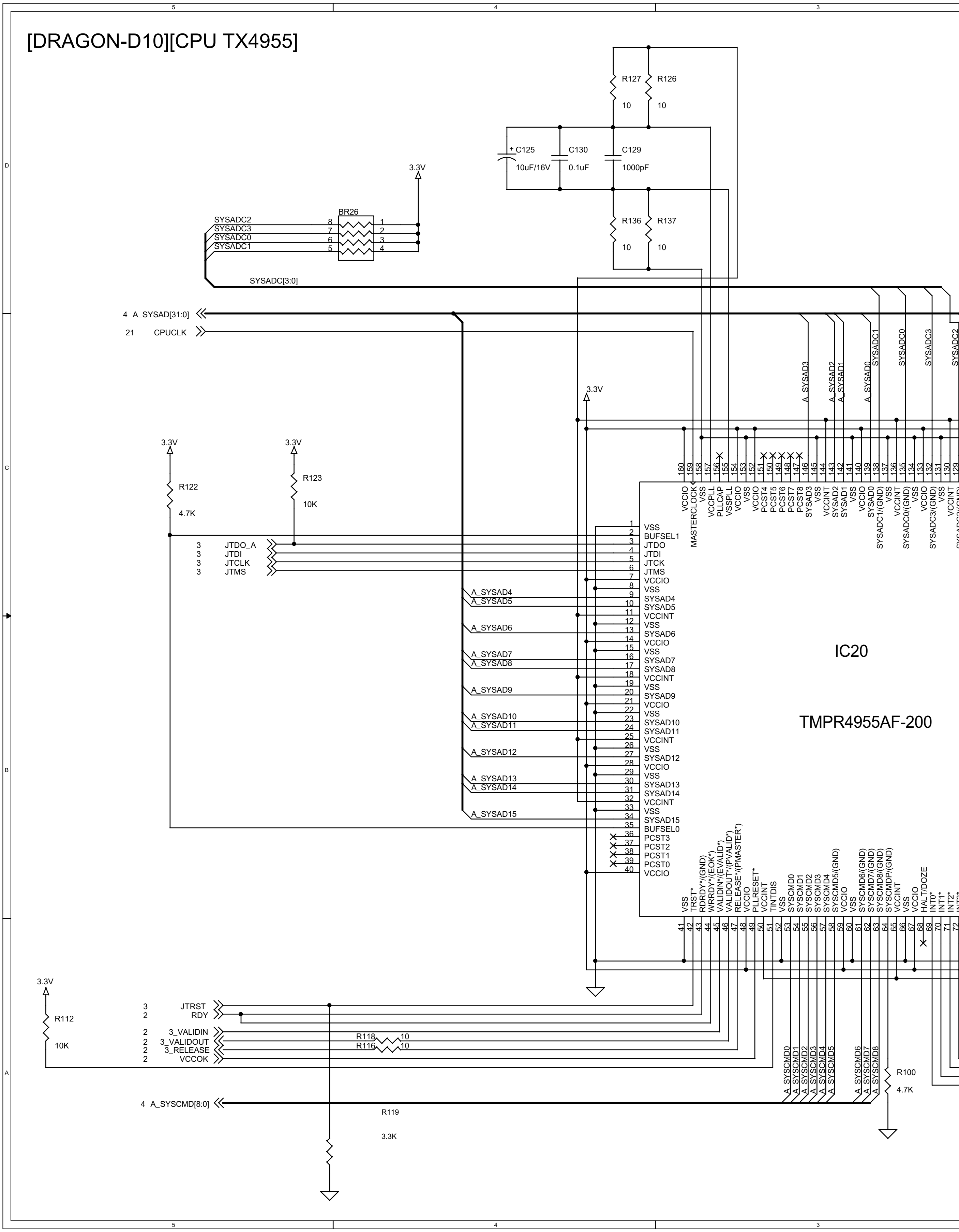
PCI Block (ICU & Option)

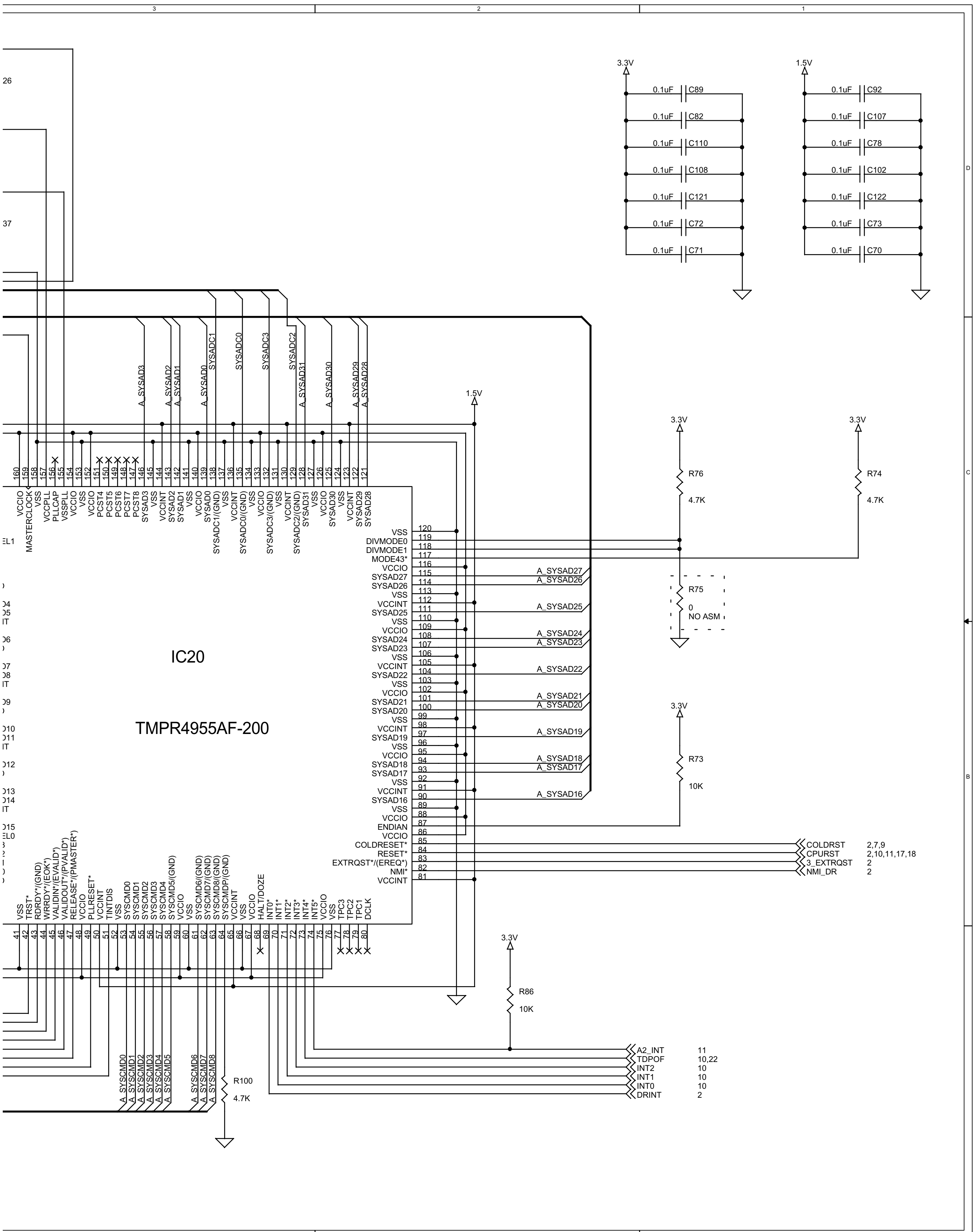


I/O Block (EEPROM & Misc I/O)



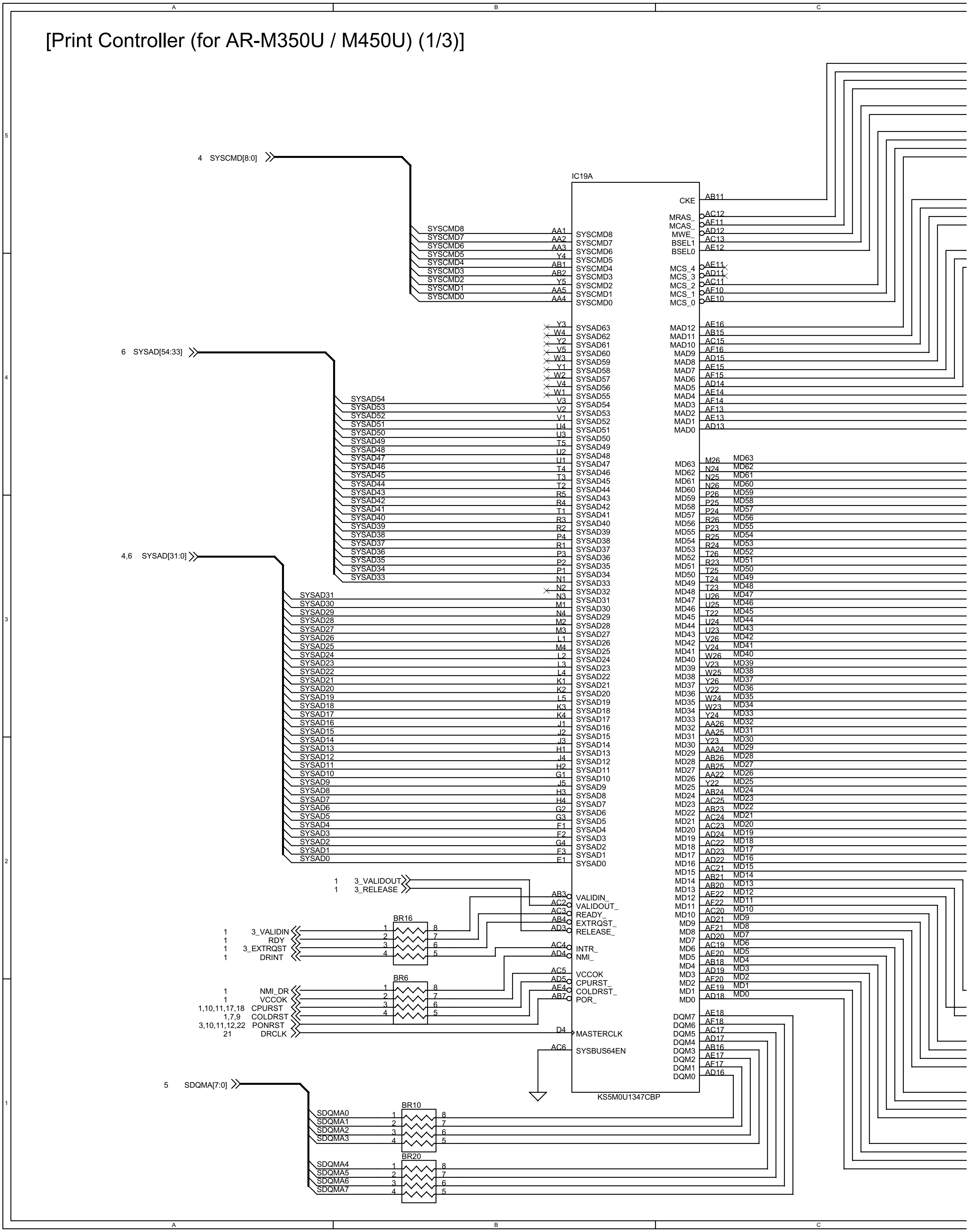
B. Circuit Diagram

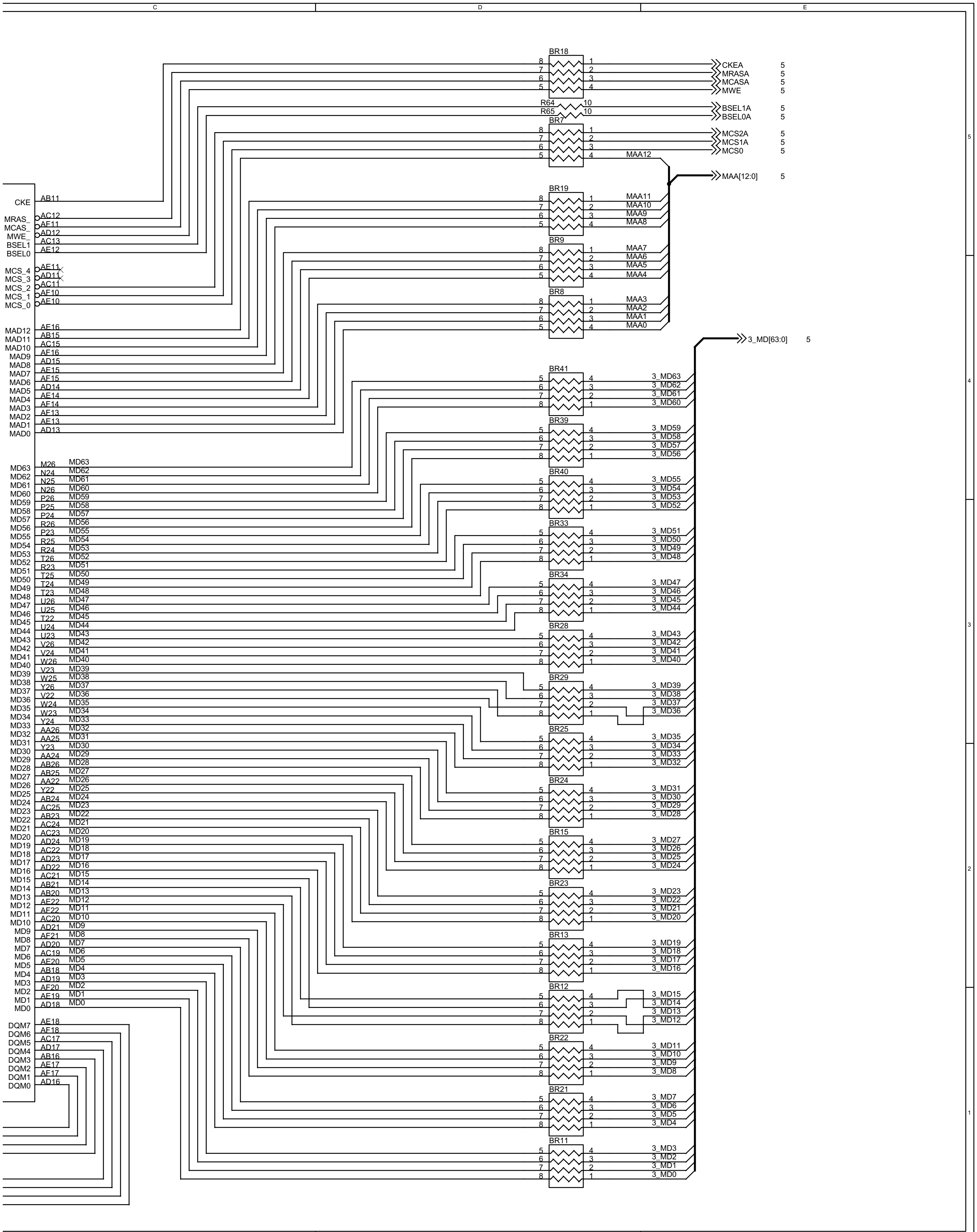




IC20
TMPR4955AF-200
3.3V
1.5V
0.1uF C89
0.1uF C82
0.1uF C110
0.1uF C108
0.1uF C121
0.1uF C72
0.1uF C71
0.1uF C92
0.1uF C107
0.1uF C78
0.1uF C102
0.1uF C122
0.1uF C73
0.1uF C70
R76 4.7K
R74 4.7K
R75 0 NO ASM
R73 10K
R86 10K
R100 4.7K
COLDRST 2,7,9
CPURST 2,10,11,17,18
3_EXTRQST 2
NMI_DR 2
A2_INT 11
TDPOF 10,22
INT2 10
INT1 10
INT0 10
DRINT 2
VSS
DIVMODE0
DIVMODE1
MODE43*
VCCIO
VCCINT
SYSAD27
SYSAD26
SYSAD25
SYSAD24
SYSAD23
SYSAD22
SYSAD21
SYSAD20
SYSAD19
SYSAD18
SYSAD17
SYSAD16
ENDIAN
COLDRESET*
RESET*
EXTRQST*/(EREQ*)
NMI*
A_SYSAD27
A_SYSAD26
A_SYSAD25
A_SYSAD24
A_SYSAD23
A_SYSAD22
A_SYSAD21
A_SYSAD20
A_SYSAD19
A_SYSAD18
A_SYSAD17
A_SYSAD16
MASTERCLOCK
VCCPLL
PLLCAP
VSSPLL
PCST4
PCST5
PCST6
PCST7
PCST8
SYSAD3
SYSAD2
SYSAD1
SYSAD0
SYSADC1/(GND)
SYSADC0/(GND)
SYSADC3/(GND)
SYSADC2/(GND)
SYSAD31
SYSAD30
SYSAD29
SYSAD28
A_SYSAD3
A_SYSAD2
A_SYSAD1
A_SYSAD0
SYSADC1
SYSADC0
SYSADC3
SYSADC2
A_SYSAD31
A_SYSAD30
A_SYSAD29
A_SYSAD28
TRST*
RDRDY*/(GND)
WRRDY*/(EOK*)
VALIDIN*/(EVALID*)
VALIDOUT*/(PVALID*)
RELEASE*/(PMASTER*)
PLLRESET*
TINTDIS
SYSCMD0
SYSCMD1
SYSCMD2
SYSCMD3
SYSCMD4
SYSCMD5/(GND)
SYSCMD6/(GND)
SYSCMD7/(GND)
SYSCMD8/(GND)
SYSCMDP/(GND)
HALT/DOZE
INT0*
INT1*
INT2*
INT3*
INT4*
INT5*
TPC3
TPC2
TPC1
DCLK
A_SYSCMD0
A_SYSCMD1
A_SYSCMD2
A_SYSCMD3
A_SYSCMD4
A_SYSCMD5
A_SYSCMD6
A_SYSCMD7
A_SYSCMD8

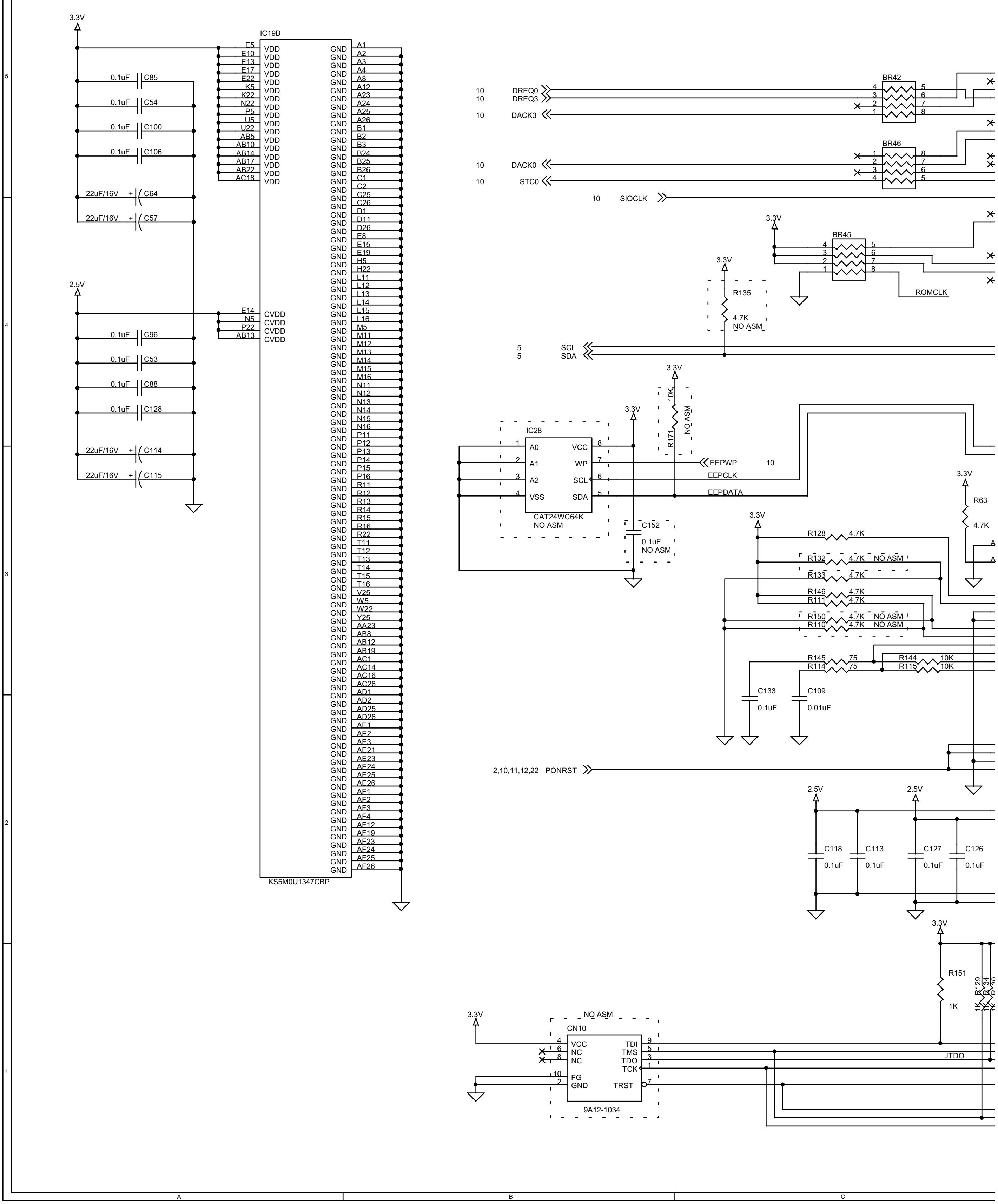
[Print Controller (for AR-M350U / M450U) (1/3)]

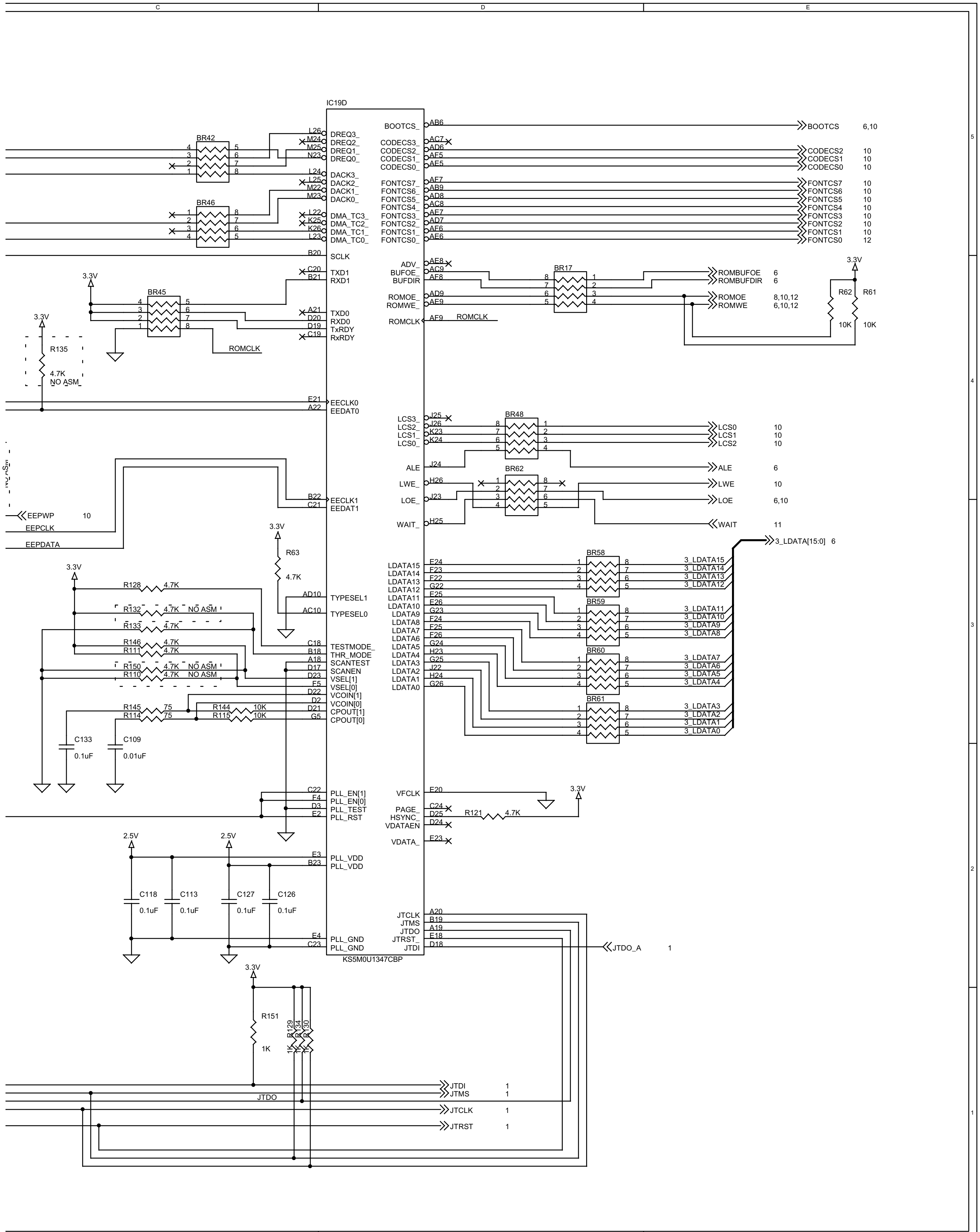




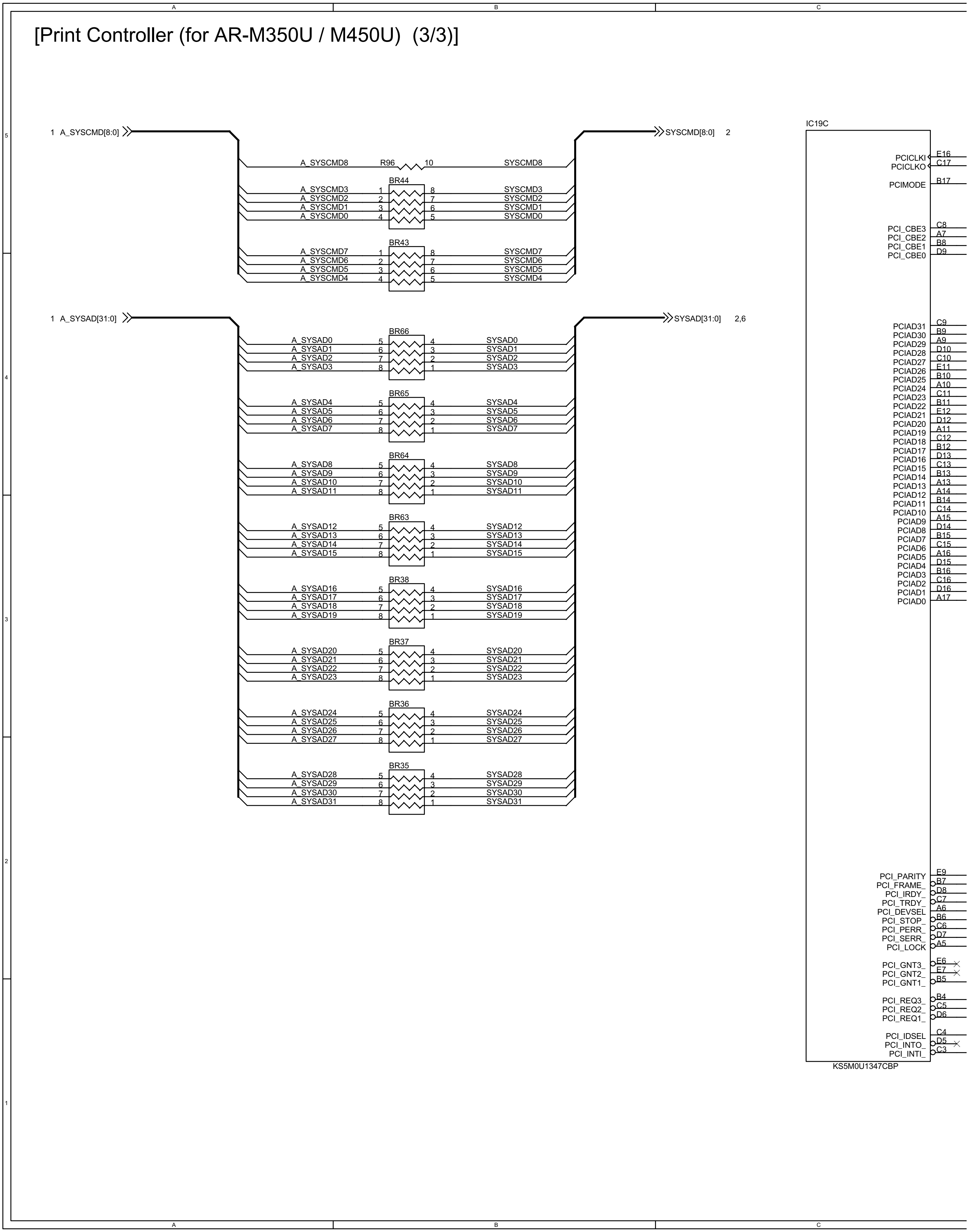
C
D
E
BR18
CKEA 5
MRASA 5
MCASA 5
MWE 5
R64
R65
BSEL1A 5
BSEL0A 5
BR7
MCS2A 5
MCS1A 5
MCS0 5
MAA12
MAA[12:0] 5
BR19
MAA11
MAA10
MAA9
MAA8
BR9
MAA7
MAA6
MAA5
MAA4
BR8
MAA3
MAA2
MAA1
MAA0
3_MD[63:0] 5
CKE AB11
MRAS_ AC12
MCAS_ AF11
MWE_ AD12
BSEL1 AC13
BSEL0 AE12
MCS_4 AE11
MCS_3 AD11
MCS_2 AC11
MCS_1 AF10
MCS_0 AE10
MAD12 AE16
MAD11 AB15
MAD10 AC15
MAD9 AF16
MAD8 AD15
MAD7 AE15
MAD6 AF15
MAD5 AD14
MAD4 AE14
MAD3 AF14
MAD2 AF13
MAD1 AE13
MAD0 AD13
BR41 BR39 BR40 BR33 BR34 BR28 BR29 BR25 BR24 BR15 BR23 BR13 BR12 BR22 BR21 BR11
MD63 M26 MD62 N24 MD61 N25 MD60 N26 MD59 P26 MD58 P25 MD57 P24 MD56 R26
MD55 P23 MD54 R25 MD53 R24 MD52 T26 MD51 R23 MD50 T25 MD49 T24 MD48 T23
MD47 U26 MD46 U25 MD45 T22 MD44 U24 MD43 U23 MD42 V26 MD41 V24 MD40 W26
MD39 V23 MD38 W25 MD37 Y26 MD36 V22 MD35 W24 MD34 W23 MD33 Y24 MD32 AA26
MD31 AA25 MD30 Y23 MD29 AA24 MD28 AB26 MD27 AB25 MD26 AA22 MD25 Y22 MD24 AB24
MD23 AC25 MD22 AB23 MD21 AC24 MD20 AC23 MD19 AD24 MD18 AC22 MD17 AD23 MD16 AD22
MD15 AC21 MD14 AB21 MD13 AB20 MD12 AE22 MD11 AF22 MD10 AC20 MD9 AD21 MD8 AF21
MD7 AD20 MD6 AC19 MD5 AE20 MD4 AB18 MD3 AD19 MD2 AF20 MD1 AE19 MD0 AD18
DQM7 AE18
DQM6 AF18
DQM5 AC17
DQM4 AD17
DQM3 AB16
DQM2 AE17
DQM1 AF17
DQM0 AD16
3_MD63 3_MD62 3_MD61 3_MD60 3_MD59 3_MD58 3_MD57 3_MD56
3_MD55 3_MD54 3_MD53 3_MD52 3_MD51 3_MD50 3_MD49 3_MD48
3_MD47 3_MD46 3_MD45 3_MD44 3_MD43 3_MD42 3_MD41 3_MD40
3_MD39 3_MD38 3_MD37 3_MD36 3_MD35 3_MD34 3_MD33 3_MD32
3_MD31 3_MD30 3_MD29 3_MD28 3_MD27 3_MD26 3_MD25 3_MD24
3_MD23 3_MD22 3_MD21 3_MD20 3_MD19 3_MD18 3_MD17 3_MD16
3_MD15 3_MD14 3_MD13 3_MD12 3_MD11 3_MD10 3_MD9 3_MD8
3_MD7 3_MD6 3_MD5 3_MD4 3_MD3 3_MD2 3_MD1 3_MD0
5
4
3
2
1

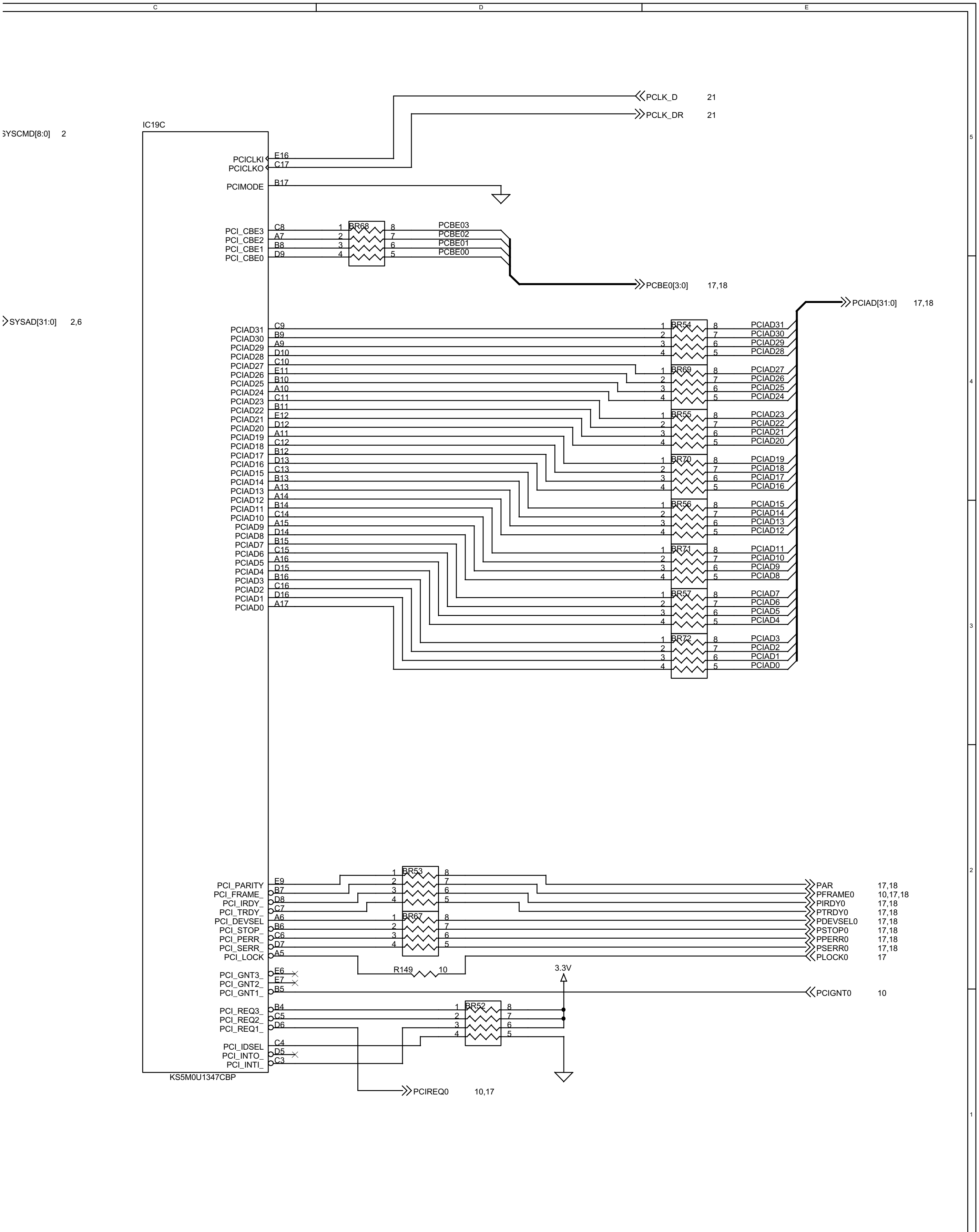
[Print Controller (for AR-M350U / M450U) (2/3)]



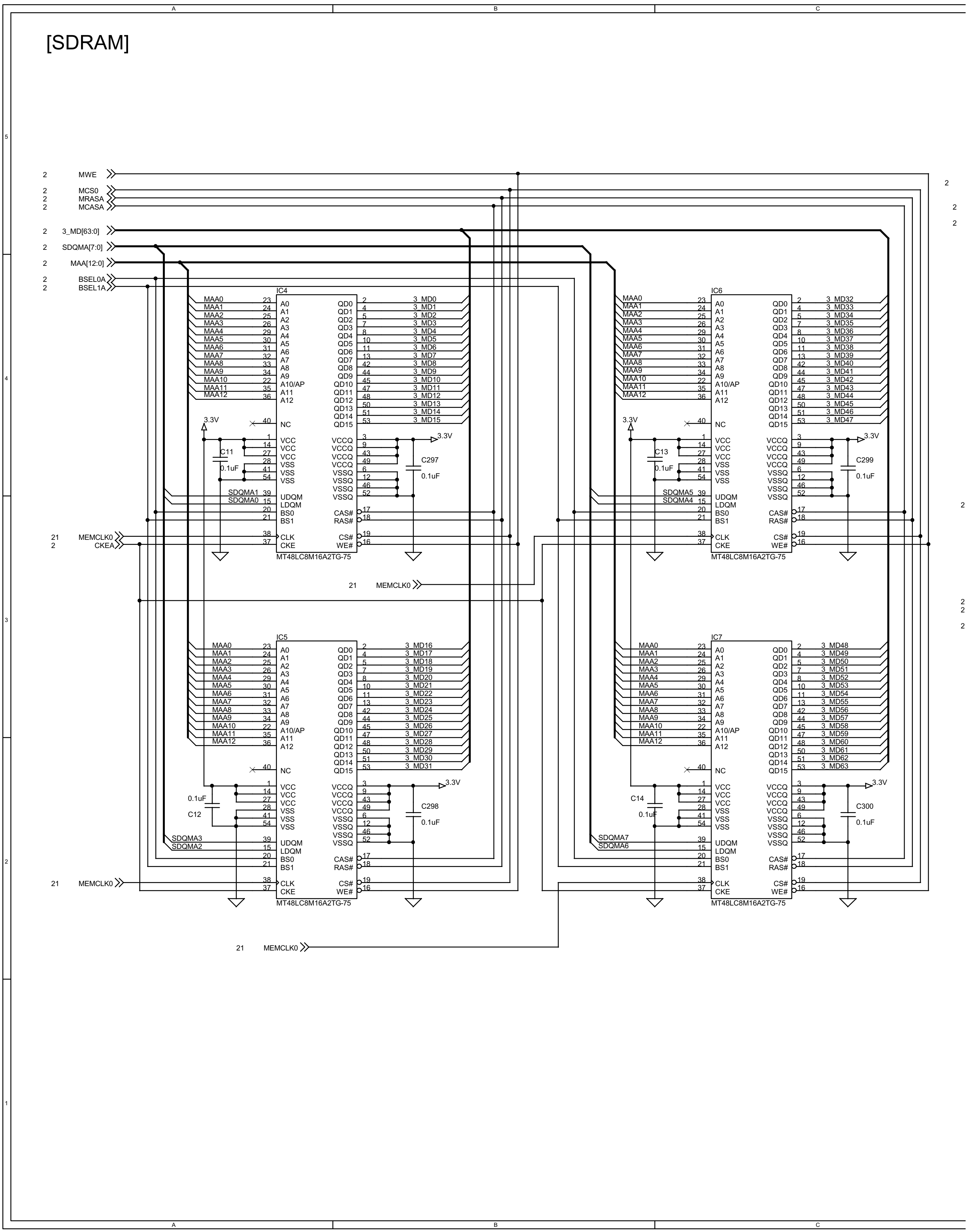

IC19D
KS5M0U1347CBP
DREQ3_
DREQ2_
DREQ1_
DREQ0_
DACK3_
DACK2_
DACK1_
DACK0_
DMA_TC3_
DMA_TC2_
DMA_TC1_
DMA_TC0_
SCLK
TXD1
RXD1
TXD0
RXD0
TxRDY
RxRDY
EECLK0
EEDAT0
EECLK1
EEDAT1
TYPESEL1
TYPESEL0
TESTMODE_
THR_MODE
SCANTEST
SCANEN
VSEL[1]
VSEL[0]
VCOIN[1]
VCOIN[0]
CPOUT[1]
CPOUT[0]
PLL_EN[1]
PLL_EN[0]
PLL_TEST
PLL_RST
PLL_VDD
PLL_GND
BOOTCS_
CODECS3_
CODECS2_
CODECS1_
CODECS0_
FONTCS7_
FONTCS6_
FONTCS5_
FONTCS4_
FONTCS3_
FONTCS2_
FONTCS1_
FONTCS0_
ADV_
BUFOE_
BUFDIR
ROMOE_
ROMWE_
ROMCLK
LCS3_
LCS2_
LCS1_
LCS0_
ALE
LWE_
LOE_
WAIT_
LDATA15
LDATA14
LDATA13
LDATA12
LDATA11
LDATA10
LDATA9
LDATA8
LDATA7
LDATA6
LDATA5
LDATA4
LDATA3
LDATA2
LDATA1
LDATA0
VFCLK
PAGE_
HSYNC_
VDATAEN
VDATA_
JTCLK
JTMS
JTDO
JTRST_
JTDI
BR42
BR46
BR45
BR17
BR48
BR62
BR58
BR59
BR60
BR61
R135
4.7K
NO ASM
R62
R61
10K
R63
R128
R132
R133
R146
R111
R150
R110
R145
R114
R144
R115
R121
R151
1K
R129
R134
R130
C133
0.1uF
C109
0.01uF
C118
C113
C127
C126
3.3V
2.5V
BOOTCS 6,10
CODECS2 10
CODECS1 10
CODECS0 10
FONTCS7 10
FONTCS6 10
FONTCS5 10
FONTCS4 10
FONTCS3 10
FONTCS2 10
FONTCS1 10
FONTCS0 12
ROMBUFOE 6
ROMBUFDIR 6
ROMOE 8,10,12
ROMWE 6,10,12
LCS0 10
LCS1 10
LCS2 10
ALE 6
LWE 10
LOE 6,10
WAIT 11
3_LDATA[15:0] 6
3_LDATA15
3_LDATA14
3_LDATA13
3_LDATA12
3_LDATA11
3_LDATA10
3_LDATA9
3_LDATA8
3_LDATA7
3_LDATA6
3_LDATA5
3_LDATA4
3_LDATA3
3_LDATA2
3_LDATA1
3_LDATA0
EEPWP 10
EEPCLK
EEPDATA
JTDO_A 1
JTDI 1
JTMS 1
JTDO
JTCLK 1
JTRST 1

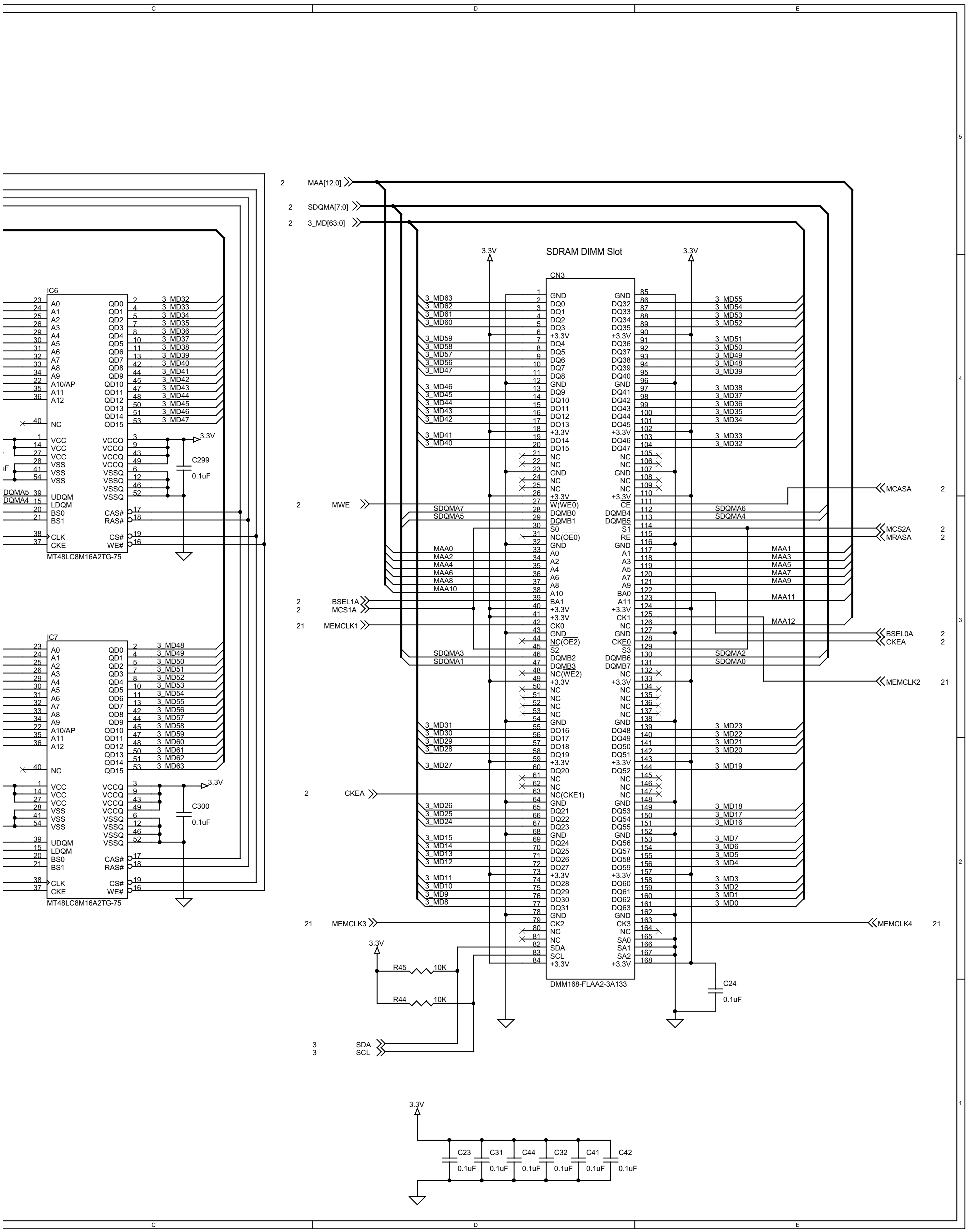
[Print Controller (for AR-M350U / M450U) (3/3)]




IC19C
KS5M0U1347CBP
SYSCMD[8:0] 2
SYSAD[31:0] 2,6
PCICLKI E16
PCICLKO C17
PCIMODE B17
PCLK_D 21
PCLK_DR 21
PCI_CBE3 C8
PCI_CBE2 A7
PCI_CBE1 B8
PCI_CBE0 D9
BR68
PCBE03
PCBE02
PCBE01
PCBE00
PCBE0[3:0] 17,18
PCIAD[31:0] 17,18
BR54
BR69
BR55
BR70
BR56
BR71
BR57
BR72
PCI_PARITY E9
PCI_FRAME_ B7
PCI_IRDY_ D8
PCI_TRDY_ C7
PCI_DEVSEL A6
PCI_STOP_ B6
PCI_PERR_ C6
PCI_SERR_ D7
PCI_LOCK A5
BR53
BR67
PAR 17,18
PFRAME0 10,17,18
PIRDY0 17,18
PTRDY0 17,18
PDEVSEL0 17,18
PSTOP0 17,18
PPERR0 17,18
PSERR0 17,18
PLOCK0 17
R149 10
3.3V
PCI_GNT3_ E6
PCI_GNT2_ E7
PCI_GNT1_ B5
PCIGNT0 10
PCI_REQ3_ B4
PCI_REQ2_ C5
PCI_REQ1_ D6
BR52
PCI_IDSEL C4
PCI_INTO_ D5
PCI_INTI_ C3
PCIREQ0 10,17

[SDRAM]




SDRAM DIMM Slot
CN3
DMM168-FLAA2-3A133
IC6
MT48LC8M16A2TG-75
IC7
MT48LC8M16A2TG-75
MAA[12:0]
SDQMA[7:0]
3_MD[63:0]
MWE
BSEL1A
MCS1A
MEMCLK1
CKEA
MEMCLK3
MCASA
MCS2A
MRASA
BSEL0A
MEMCLK2
MEMCLK4
SDA
SCL
R45
R44
10K
C299
C300
C24
C23
C31
C44
C32
C41
C42
0.1uF
3.3V